Crown Full Line Catalog

A Harman International Company

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AMPLIFIERS

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I-T4000
I-T6000
I-T8000

Features

- Amazingly high power in a 2U lightweight chassis
- Global power supply with power factor correction
- Onboard DSP
- Connects to TCP/IQ™ network
  (CobraNet input available in optional CN models, coming soon)
- LCD control screen allows easy setup, diagnostics, and DSP presets for various loudspeakers.

EXCELLENCE

	Power Output*				
	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Duall (per channel)	4-ohm Bridge	8-ohm Bridge
I-T4000	**1800W**	**2000W**	**1250W**	**3600W**	**4000W**
I-T6000	**2500W**	**3000W**	**1500W**	**5000W**	**6000W**
I-T8000	**3500W**	**4000W**	**2100W**	**7000W**	**8000W**

*Guaranteed minimum power in watts at rated THD, 20 Hz - 20 kHz

Specifications

Frequency Response (at 1 watt, 20 Hz - 20 kHz): ±0.25dB.
Signal to Noise Ratio below rated full-bandwidth power, A-weighted: > 105 dB
Total Harmonic Distortion (THD) at full rated power: < 0.35%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from full rated output to –35 dB: < 0.35%.
Damping Factor (20 Hz to 100 Hz, 8 ohms): > 5000.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Common Mode Rejection (CMR) (20 Hz to 1 kHz): > 50 dB.
DC Output Offset (shorted input): < ±3 mV.
Input Impedance (nominal): 20 kilohms balanced, 10 kilohms unbalanced.
Maximum Input Level: +15 dBu or +22 dBu, depending on input sensitivity.
Latency (analog, digital inputs): 1.13 mS analog, 2.36 mS digital (44.1 kHz).
A/D, D/A Converters: 24-bit 96 kHz Cirrus Logic.
Digital Input: AES/EBU, 16-24 bit, 32-48 kHz. Onboard sample rate converter.
Network: Onboard TCP/IQ, compatible with standard 100 Mb Ethernet hardware.
DSP: 24-bit conversion with 32-bit, floating-point DSP processing. Has 64 assignable filters with 9 different filter types. Includes all-pass filters, over 2 seconds of delay available per channel, and dual uncorrelated-noise and sine-wave generators.
Load Supervision: Monitors the average impedance on the output of the amplifier. If the impedance falls outside the specified high/low limits, this function alerts the user via the front panel display, and via the IQwic software when amp is on an IQ Network.
Error Reporting: Reports clip errors, thermal errors, fault conditions and load monitoring errors for each channel via the front panel display and via IQwic software when amp is on an IQ Network.
Attenuators: Speed-sensitive rotary encoders, 0.5 dB steps, range 0 to –90 dB.
Load Impedance (Note: Safe with all types of loads): Stereo: 1/2/4/8/16 ohms.
Bridge Mono: 2/4/8 ohms.
Input Sensitivity for rated output/8 ohms: Adjustable in 0.1V steps from 1.4V to 7.75V .
Voltage Gain:
I-T4000: 37.1 dB to 22.2 dB.
I-T6000: 37.9 dB to 23.0 dB
I-T8000: 39.3 dB to 24.5 dB
Required AC Mains: Universal AC input, 100-240VAC, 50/60 Hz (±15%). Maximum AC mains voltage 277VAC.
Power Cord Connector: Five cordsets supplied with amplifier (USA, UK, European, Australia, India).

Front Panel Controls and Indicators

Bridge Mode Indicator: Yellow LED illuminates when the amplifier is set to Bridge-Mono mode.
Ready Indicator: Green LED, one per channel, illuminates when the channel is initialized and ready to produce audio output. Indicator is off when the amplifier is in standby mode via the IQ system.
Signal Indicators: Three green LEDs per channel indicate the amplifier's input and output signal levels.
Signal: input signal is above –40 dBu
–20 dB: amplifier output is 20 dB below clipping
–10 dB: amplifier output is 10 dB below clipping.
Clip Indicator: Red LED, one per channel, illuminates when the channel's output signal reaches the onset of audible clipping. The Clip Indicator also will illuminate during Thermal Level Control (TLC) limiting.
Thermal Indicator: Red LED, one per channel, illuminates when the channel has shut down, or is very near shutting down, due to thermal stress or overload.
Fault Indicator: Red LED, one per channel, flashes when the amplifier output channel has stopped operating.
Data Indicator: Yellow LED indicates IQ Network data activity. Data indicator flashes only when the amplifier is polled for data, or is polled to see whether it is online.
Power Indicator: Blue LED indicates amplifier has been turned on and AC power is available. The LED will flash when the AC line voltage is 15% above or below the nominal rated range.
AC Mains Present Indicator: Green indicator built into power switch indicates AC power is present at the power cord and the amplifier circuit breaker is in the "on" position.
LCD Control Screen and Controls: These let the user adjust the amplifier's attenuation and muting, configure the amp, set up and view error monitoring (such as temperature and load supervision), and recall DSP presets. The presets allow the user to quickly reconfigure the amp for various applications.
LCD Control Screen: Integrated LCD with white LED backlight, controls amplifier setup and operation.
Normal mode: Attenuation in 0.5 dB steps, Mute/Unmute, Front Panel Lockout.
Basic Menu: LCD Contrast, CH1 Sensitivity, CH2 Sensitivity, Speaker Preset, Dual/Bridge mode, Input Y.
Advanced Features Menu: Attenuator Limits, Attenuator Link, Clip Limiter, Peak Voltage Limiter, Average Power Limiter, Pink Noise Generator, AES/EBU Input Trim, Input Source, Maximum Analog Input, Amplifier Label Edit, CH1 Label Edit, CH2 Label Edit.
Menu/Exit Button: "Menu" enters the main menu. "Exit" gets out of the Menu.
Next Button: Selects the next item in the Menu.
Prev Button: Selects the previous item in the Menu
Level Controls (Encoders): These two knobs affect the Channel-1 and Channel-2 output levels. They also select Menu items and adjust parameter values that are displayed on the LCD Control Screen.
Power Switch: Push-on/push-off switch with built-in green AC mains present indicator.

Back Panel Controls, Indicators and Connectors

Power Cord Connector: Standard 20 amp IEC inlet. Voltage range is indicated above IEC inlet.
Reset Switch/Circuit Breaker: Resets circuit breaker that protects power supply.
Output Connectors: Two high-current, 50A Neutrik® Speakon® (mates with NL4FC), one per channel. Two pairs of high-current, 60A color-coded 5-way binding posts (for banana plugs, spade lugs or bare wire). Two male XLR passive analog loop through. XLR active/re-clocked AES/EBU digital loop through.
Analog Input Connectors: A 3-pin female XLR connector for each channel.
Digital Input Connector: A 3-pin female XLR connector that accepts a digital signal in the AES/EBU format.
Ground Lift Switch: Isolates input ground from AC ground.
Network Connector: This Ethernet connector accepts an RJ-45 connector for TCP/IQ networking. Built into the connector is a yellow LINK ACT indicator that shows network activity, and a green 100Mb indicator that shows a 100Mb network connection.
Data Indicator: Yellow LED indicates IQ Network data activity. Data indicator flashes only when the amplifier is polled for data, or is polled to see whether it is online.
Preset Indicator: Yellow LED flashes to signal the number of the current preset if active.
Cooling: Dual-zone, microprocessor controlled, continuously variable speed fans, front-to-back airflow.
Front Panel: Cast aluminum with integrated handles.
Dimensions: 19 in. (48.3 cm) W x 3.5 in. (8.9 cm) H x 16.2 in. (41.1 cm) D.
Weight: 28 lbs (12.7 kg) net, 36 lbs (16.3 kg)shipping.
Included Accessories: Rear rack ears with integral EZ-Rack Pin, rack screws, operation manual, power cords, foam air filter.

Other Applications: TOURING

Regulatory Certifications:

The Crown® I-Tech Series offers amazing power, light weight and ease of use for touring sound and installed sound applications. Onboard DSP provides a wide array of signal processing, greatly reducing the need for rack components and rack wiring. Onboard DSP features 24-bit, 96 kHz A/D and D/A converters. All models are compatible with the IQ® Network and TCP/IQ networking. Digital audio and IQ control signals connect to the amp via a single CobraNet cable in optional CN models, coming soon. Pushbutton DSP presets simplify the setup for various loudspeaker arrays. The Global Power Supply works anywhere in the world, and offers PFC (Power Factor Correction). It is a switching power supply for reduced weight. I-Tech amplifiers have the highest output voltage in the industry (200V peak), which provides clean transient peaks. The 3rd-generation patented Class I (BCA®) circuitry couples power efficiently to the load and allows low AC current drain. A front-panel control screen shows advanced diagnostics and status information.

INSTALLED SOUND

CTs 600
CTs 1200
CTs 2000
CTs 3000

Features

- High power density. All two channel models in a 2U chassis.
- New Crown Switching Power Supply for lighter weight.
- Selectable “Constant-Voltage” or low-impedance operation per channel.
- 100V direct outputs on CTs 2000, CTs 3000.
- Fully PIP2-compatible.

FOUNDATION

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	16-ohm Dual (per channel)	70V Dual (per channel)	100V Dual (per channel)	4-ohm Bridge	8-ohm Bridge	16-ohm Bridge	140V Bridge	200V Bridge
CTs 600	150W	300W	300W	300W	300W	——	600W	600W	600W	——	——
CTs 1200	250W	600W	600W	300W	600W	——	1,200W	1,200W	1,200W	——	——
CTs 2000	1,000W	1,000W	1,000W	625W	1,000W	1,000W	2,000W	2,000W	2,000W	2,000W	2,000W
CTs 3000	1,500W	1,500W	1,250W	625W	1,500W	1,500W	3,000W	3,000W	2,500W	3,000W	3,000W

*Maximum average power in watts at rated THD, 20 Hz - 20 kHz

Specifications

The following applies to units in Dual mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.25 dB.
Signal-to-Noise Ratio, A-weighted, below rated power (20 Hz to 20 kHz) < 105 dB.
Total Harmonic Distortion (THD) at full rated power, from 20 Hz to 20 kHz
CTs 600 & CTs 1200: < 0.1%.
CTs 2000 & CTs 3000: < 0.35%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from –40 dB to full power: < 0.1% for CTs 600/1200 and < 0.35% for CTs 2000/3000.
Damping Factor, 10 Hz to 100 Hz: > 3000.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Voltage Gain (at maximum level setting)
8/4-ohm operation, 1.4V sensitivity
CTs 600: 35:1 (31 dB).
CTs 1200: 50:1 (34 dB).
CTs 2000: 63.9:1 (36 dB).
CTs 3000: 71.4:1 (37 dB).
26 dB: 20:1 (26 dB)
70V operation, 1.4V sensitivity (all models) and 100V operation, 2.0V sensitivity (CTs 2000 & CTs 3000): 50:1 (34 dB)
Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical): 50 dB
Maximum Input Level: + 20 dBu before input compression, +32 dBu absolute maximum.

Power

Load Impedance (Safe with all types of loads),
CTs 600 & CTs 1200: Stereo, 2 to 16 ohms and 70V; Mono, 4 to 16 ohms and 140V.
CTs 2000 & CTs 3000: Stereo, 2 to 16 ohms, 70V and 100V; Mono, 4 to 16 ohms, 140V and 200V.
AC Line Voltages Available (+15%, –25%): 120VAC, 60 Hz and 230VAC, 50 Hz.
Power Draw at Idle (120VAC mains)
CTs 600 & CTs 1200: 24W (standby mode)
CTs 2000 & CTs 3000: 35W (standby mode)

Controls and Indicators

Front Panel Indicators: Bridge Mode, Ready, Signal, Clip, Thermal, Fault, Data, Power.

Back Panel Controls and Connectors

Power Cord Connector: IEC
Reset Switch: Resets the power circuit breaker.
Channel Level Controls: 21-position detented, one per channel.
Level Attenuation: Approx. –95 dB to 0 dB gain.
High-Pass Filter: One three-position switch per channel selects between OFF, 35 Hz and 70 Hz 3rd-order filters.
Mode Switch: Two-position switch is used to select the amplifier's mode of operation: Dual or Bridge-Mono.
"Y" Input Swtich: When set to ON, this switch parallels the input signals of the two channels, for use when the input signal is mono. Also can be used to daisy-chain the signal to another amplifier.

Input/Output

Input Connectors: Balanced 3-pin terminal block connectors, one per channel, on the standard PIP2™-BBY module.
Input Impedance: (nominally balanced, nominally unbalanced): 10 k ohms, 5 k ohms.
Output Connectors: One four-pole touch-proof terminal strip. Accepts up to 10 AWG terminal forks.
DC Output Offset (shorted input): < 2 millivolts.

Protection

CTs Series amplifiers provide extensive protection and diagnostic capabilities, including Thermal Level Control (TLC), fault, low-pass filters, high-pass filters, AC under/over voltage protection, DC output servo, circuit breaker, inrush limiting, and Junction Temperature Simulation (JTS) in CTs 600/1200.

Construction

Ventilation: Front-to-rear forced airflow. Two continuously variable speed fans direct the airflow through the amplifier for cooling.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 14.25-inch (36.2-cm) depth behind the mounting surface.

Weight

Net Weight,
CTs 600: 22.8 lbs. (10.3 kg);
CTs 1200: 23.4 lbs. (10.6 kg);
CTs 2000: 27.0 lbs. (12.2 kg).
CTs 3000: 27.7 lbs. (12.6 kg).
Shipping Weight,
CTs 600: 27.7 lbs. (12.6 kg);
CTs 1200: 28.3 lbs. (12.8 kg);
CTs 2000: 32.0 lbs. (14.5 kg).
CTs 3000: 32.7 lbs. (14.8 kg).

System Solutions: IQ® PIP™ LITE, IQ-PIP USP3, IQ-PIP USP3/CN, PIP-3632, PIP-4622, PIP-4632 and PIP-USL.

Accessories:
T-170V: This is an autoformer that allows 100V output from the CTs 8200, and allows other amplifiers without direct constant voltage output to be easily integrated into distributed systems.
TP-170V: This is a rack-mountable panel with four autoformers as described above.

Other Applications: CINEMA

Regulatory Certifications:

Building on the foundation of the Com-Tech Series, Crown's CTs Series offers new flexibility and value for installed sound applications. The Com-Tech Series were the first to offer independent selection of high- and low-impedance operation for a specific channel, and CTs Series amplifiers continue that tradition, with power levels and features carefully chosen to perfectly integrate into fixed install design requirements.

CTs 4200
CTs 8200

Features

- High power density: Four-channel model in a 2U chassis, eight-channel model in a 3U chassis.
- New Crown Switching Power Supply for lighter weight.
- Selectable “Constant-Voltage” or low-impedance (4/8 ohm) operation per channel-pair.
- 100V direct outputs.
- New “FIT” (Fault Isolation Topology) circuitry isolates fault conditions without affecting neighboring channels.
- Accept new MC accessory modules.

FLEXIBILITY

Power Output*

	All channels driven			1 channel driven			All channel pairs driven			1 channel pair driven		
	4-ohm Dual (per ch)	8-ohm Dual (per ch)	70V Dual (per ch)	4-ohm Dual (per ch)	8-ohm Dual (per ch)	70V Dual (per ch)	8-ohm Bridge (per ch pair)	16-ohm Bridge (per ch pair)	100V Bridge (per ch pair)	8-ohm Bridge (per ch pair)	16-ohm Bridge (per ch pair)	100V Bridge (per ch pair)
CTs 4200	**260W**	**200W**	**220W†**	**270W**	**220W**	**250W†**	**520W**	**400W**	**220W†**	**560W**	**440W**	**250W†**
CTs 8200	**200W**	**160W**	**200W†**	**270W**	**220W**	**250W†**	**400W**	**320W**	**200W†**	**540W**	**440W**	**250W†**

*Maximum average power in watts at 1kHz at 0.1% THD.
†Constant Voltage full-bandwidth power ratings support 100 Hz to 20 kHz due to automatic high-pass filters.

Specifications

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.5 dB.
Phase Response (at 1 watt) 10 Hz to 20 kHz: ±35°.
Signal-to-Noise Ratio, unweighted, below rated power (20 Hz to 20 kHz): 100 dB.
Total Harmonic Distortion (THD) at full rated power, from 20 Hz to 20 kHz: < 0.1%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from 163 milliwatts to full bandwidth power: < 0.05% (typical).
Damping Factor, 10 Hz to 400 Hz: > 180.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Voltage Gain (at maximum level setting) 1.4V sensitivity
8/4-ohm operation: 20:1 (26 dB).
70V operation: 50:1 (34 dB).
100V operation: 71.4:1 (37 dB).
Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical): > 50 dB.
DC Output Offset (Shorted input): < ±5 mV.
Maximum Input Level before input compression: + 20 dBu.

Power

Load Impedance: Safe with all types of loads.
Stereo: 4/8 and 25 ohms (70V) .
Mono: 8/16 and 50 ohms (100V).
Required AC Mains: 120VAC, 60 Hz and 220/230/240VAC, 50 Hz.
Power Draw at Idle (120VAC mains, all channels in 4/8 ohm mode): 70W.

Front Panel Indicators: Bridge Mode, Ready, Signal, Clip, Thermal, Fault, Data, Power.

Back Panel Controls and Connectors:

Power Cord Connector: IEC.
Reset Switch: Resets the power circuit breaker.
Channel Level Controls: 21-position detented, one per channel.
Level Attenuation: Minus infinity (–70 dB) to 0 dB gain.
35-Hz High-Pass Filter: A fixed 35-Hz highpass filter per channel pair is automatically inserted when the mode switch is set to either of the constant-voltage settings. The high-pass filter corner frequency can be set to 70 Hz, or bypassed, with a service option.
Mode Switch: Used on each consecutive pair of channels, this four-position switch is used to select the amplifier's mode of operation: Dual 8/4 ohms, Dual 70V, Bridge-Mono 16/8 ohms,and Bridge-Mono 100V.

Input/Output

Input Connectors: Removable Phoenix™-style barrier connectors for balanced input.
Input Impedance: (nominal):
20 k ohms balanced, 10 k ohms unbalanced.
Output Connectors: One four-pole touch-proof terminal strip for every two channels, with touch-proof cover. Accepts up to 10 AWG terminal forks.
DC Output Offset (shorted input): < ±2 millivolts.

Protection

CTs Multi-channel Series amplifiers provide extensive protection and diagnostic capabilities, including Thermal Level Control (TLC), fault, FIT protected circuitry, AC under/over voltage protection, power fuse, and inrush limiting.

Construction

Ventilation: Front-to-rear forced airflow. Continuously variable speed fans (four in the CTs 8200, one in the CTs 4200) direct the airflow through the amplifier for cooling.

Dimensions

CTs 4200: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 16.25-inch (41.3-cm) depth behind the mounting surface.
CTs 8200: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 5.25-inch (13.3-cm) height and 16.25-inch (41.3-cm) depth behind the mounting surface.

Weight

Net Weight
CTs 4200: 27 lb 8 oz (12.5 kg);
CTs 8200: 36 lb 6 oz (16.5 kg);
Shipping Weight
CTs 4200: 32 lb (14.5 kg).
CTs 8200: 47 lbs. (21.3 kg);

System Solutions:

IQ-MC4A: IQ module for CTs 4200;
IQ-MC8: IQ module for CTs 8200;
VCA-MC4: VCA module for CTs 4200;
VCA-MC8: VCA module for CTs 8200.

IQ modules allow remote monitoring and control.
VCA modules allow remote volume control.

Accessories:

Wall-mount level control panels for use with VCA module:
1-VCAP: 1-gang panel with 1 VCA channel volume control;
4-VCAP: 2-gang panel with 4 VCA channel volume controls.

Accessories (cont.):

T-170V: This is an autoformer that allows 100V output from the CTs 8200, and allows other amplifiers without direct constant voltage output to be easily integrated into distributed systems.
TP-170V: This is a rack-mountable panel with four autoformers as described above.

Other Applications:

Regulatory Certifications:

Crown's CTs Multi-channel Series offers wide flexibility for a wide range of installed sound applications. CTs Multi-channel Series amplifiers offer independent selection of high-and low-impedance operation for each channel pair, making these amps ideal for multi-zone installations. New Crown MC accessory modules provide enhanced control, monitoring, and system integration, including IQ System compatibility.

CH1
CH2
CH4

Features

- Drives multiple impedances, with both low impedance and high impedance outputs per channel.
- High-pass filter for each channel provides low-frequency roll off to eliminate step down transformer saturation when used in 70V distributed systems.
- Rear panel detented level controls allow for accurate level settings and secure operation.
- "Contractor Correct" barrier strip output connectors allow for quick and easy connection, regardless of the load.

VERSATILITY

	Power Output*						
	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	4-ohm Stereo (per channel)	70/100V Stereo (per channel)	8-ohm Bridge Mono	140V Bridge Mono	200V Bridge Mono
CH1		**450W**	**275W**	**300W**	**900W**	**600W**	**600W**
CH2		**660W**	**400W**	**600W**	**1,320W**	**1,200W**	**1,200W**
CH4	**1,400W**	**1,200W**	**600W**	**1,200W**	**2,400W**	**2,400W**	**—**

*Maximum average power in watts at 0.5% THD, 1 kHz.

Specifications

Note: All measurements apply to all models of CH series amplifiers in stereo mode with 8-ohm loads and an input sensitivity of 26-dB gain, 1-kHz at rated power unless other otherwise specified. Specifications for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Power

Load Impedance: Safe with all types of loads.
- **CH1:** 4 and 8 ohm Stereo; 16 ohm at 70V Stereo; 32 ohm at 100V Stereo; 8 and 16 ohm Bridge; 32 ohm at 140V Bridge; 64 ohm at 200V Bridge.
- **CH2:** 4 and 8 ohm Stereo; 8 ohm at 70V Stereo; 16 ohm at 100V Stereo; 8 and 16 ohm Bridge; 16 ohm at 140V Bridge; 32 ohm at 200V Bridge.
- **CH4:** 4 and 8 ohm Stereo; 4 ohm at 70V Stereo; 8 and 16 ohm Bridge; 8 ohm at 140V Bridge.

Voltage Gain, 1 kHz, 1.4V sensitivity,
- **CH1:** 30.5 dB (4/8 ohm); 34 dB (70V); 37 dB (100V).
- **CH2:** 32.1 dB (4/8 ohm); 34 dB (70V); 37 dB (100V).
- **CH4:** 34 dB (4/8 ohm); 34 dB (70V).

AC Line Requirements: CL1, CL2: 60 Hz. CL4: 50/60 Hz.

AC Line Current (no signal):
- **CH1:** 100 Volts: 7.6 A; 120 Volts: 6.3 A; 230-240 Volts: 3.5 A.
- **CH2:** 100 Volts: 11.4 A; 120 Volts: 9.5 A; 230-240 Volts: 5.0 A.
- **CH4:** 100 Volts: 8.5 A; 120 Volts: 7.1 A; 230-240 Volts: 3.7 A.

AC Line Connector: Detachable 15A IEC connector with country-specific plug.

Performance

Frequency Response, 20 Hz to 20 kHz at 1 watt:
- **CH1, CH2:** ±0.1 dB.
- **CH4:** ±0.25 dB.

Phase Response: ±15 degrees from 20 Hz to 20 kHz at 1 watt.

Signal to Noise Ratio, A-Weighted,
- **CH1, CH2:** Better than 105 dB below rated 1-kHz power.
- **CH4:** Better than 102 dB below rated 1-kHz power.

Total Harmonic Distortion (THD) at rated power: 0.5% or less.

Intermodulation Distortion (60 Hz and 7 kHz at 4:1):
- **CH1, CH2:** Less than 0.1% at rated power to 30 dB below rated power at 8 ohms.
- **CH4:** Less than 0.5% at rated power to 30 dB below rated power at 8 ohms.

Damping Factor (8 ohm),
- **CH1, CH2:** Better than 600 from 10 Hz to 400 Hz.
- **CH4:** Better than 1000 from 10 Hz to 400 Hz.

Crosstalk, 20 Hz to 20 kHz:
- **CH1, CH2:** Better than 50 dB below rated power.
- **CH 4:** Better than 50 dB below rated power at 10 kHz.

Common Mode Rejection (CMR): Better than 40 dB from 20 Hz to 1 kHz.

DC Output Offset (Shorted Input): ±10 mV.

Controls

Level: A detented rotary level control for each channel located on the rear panel.

System Solutions:

SST Modules: SST-SBSC: variable Linkwitz-Riley stereo crossover with mono-summed sub-bass outputs; SST-MX: 100-Hz Linkwitz-Riley crossover with stereo sub-bass output; SST-SX: 80-/120-Hz switchable Linkwitz-Riley crossover with mono summed sub-bass output, ScreenArray® SST modules.

Power: An on/off rocker switch located on the front panel.

Mode: Two-position switch. “Stereo” operates the amplifier as two independent channels. “Bridge” bridges the two output channels for twice the output voltage.

Channel Operation Switch: Two-position switch: “4/8 Ohm” drives low-impedance speaker loads. “70V/100V” (70V only on the CH4) drives distributed high-impedance speaker loads; inserts 70-Hz high-pass filter to prevent step-down transformer saturation.

Indicators

Signal: A green indicator for each channel which flashes when a very low-level signal (>–40 dBm) is present at input. May be used for troubleshooting cable runs.

Clip: A red indicator for each channel which turns on when distortion becomes audible in the amplifier output.

Fault: A red indicator for each channel which indicates amplifier has muted output. Normally off. Status may be monitored remotely by plugging into back-panel RJ11 Fault jack.

Power: A blue indicator that turns on when the amplifier has been turned on and has power.

Input/Output

Input Connector (standard module): One Neutrik Combo connector for each channel (balanced ¼-inch [6.35-mm] phone jack and 3-pin female XLR connector, in parallel with a barrier strip termination).

Input Stage: Electronically balanced with precision 1% resistors.

Input Impedance: Nominally 20 k ohms balanced. Nominally 10 k ohms unbalanced.

Input Sensitivity: Channel independent. Factory set at 1.4 volts for standard 1-kHz, 8-ohm power. 26-dB gain and 0.775-volt sensitivity available as a Service Option.

Output Connectors:
- **CH1 and CH2:** Four-terminal touch-proof barrier block, one per channel, connects to 8-ohm, 4-ohm, 70V or 100V outputs.
- **CH4:** Four-terminal touch-proof barrier block.

Output Signal,
- **Stereo:** Unbalanced, two-channel.
- **Bridge-Mono:** Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection: Protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Construction: Rugged steel chassis, coated with environmentally friendly powder for long life and ease of maintenance.

Cooling: Proportional speed fan.

Dimensions:
- **Width (all models):** EIA Standard 19-inch rack mount (EIA RS-310-B);
- **Height (all models):** 5.25-inch (13.34-cm);
- **Depth (behind front mounting surface):**
  CH1, CH2: 12.25-inch (31.11-cm); **CH4:** 16.25-inch (36.56-cm).

Weight
- **CH1:** 40.6 pounds (18.4 kg); **CH2:** 48.3 pounds (21.9 kg);
- **CH4:** 33.3 pounds (15.1 kg).

For shipping weight, add 6 pounds (2.7 kg) to each amplifier’s weight.

Regulatory Certifications:

As part of the Contractor (CH/CL) Series, Crown delivers three models (CH1, CH2 and CH4) designed for both low and high impedance outputs per channel, with each channel independently capable of providing 4/8-ohm, 70V or 100V operation. The powerful and flexible CH Series amplifiers also include 70-Hz high pass filters on each channel, giving you the necessary low frequency rolloff to eliminate the saturation of constant voltage step-down transformers typically used in 70V and 100V distributed systems.

CL1
CL2
CL4

Features

- Low impedance compatibility for applications where high power, low impedance loads are the primary requirement.
- Rear panel detented level controls allow for accurate level settings and secure operation.
- “Contractor Correct” barrier strip output connectors allow for quick and easy connection, regardless of the load.
- Active crossover with signal routing available with optional System Solution Topology modules.
- Accurate, uncolored sound with very low distortion for the best in music and voice reproduction.

POWERFUL

	Power Output*				
	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	4-ohm Bridge Mono	8-ohm Bridge Mono
CL1	560W	450W	275W	1,100W	900W
CL2	975W	660W	400W	1,950W	1,320W
CL4	1,400W**	1,200W	600W	2,800W**	2,400W

*Maximum average power in watts at 0.5% THD, 1 kHz.
**+200V line voltage provides 1,800W (2 ohm stereo) and 3,600W (4 ohm bridge-mono).

Specifications

Note: All measurements apply to all models of CL series amplifiers in stereo mode with 8-ohm loads and an input sensitivity of 26-dB gain, 1-kHz at rated power unless other otherwise specified. Specifications for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Power

Load Impedance: Safe with all types of loads.
All models: 2, 4 and 8 ohm Stereo; 4, 8 and 16 ohm Bridge.
Voltage Gain, 1 kHz, 1.4V sensitivity,
CL1: 30.5 dB at 4/8 ohm.
CL2: 32.1 dB at 4/8 ohm.
CL4: 34 dB at 4/8 ohm.
AC Line Requirements: North American CL1 and CL2 units are 100 volts or 120 volts, 60 Hz only. All other models 230-240 volts are 50/60 Hz. Voltages are ±10%.
AC Line Current (no signal):
CL1: 100 Volts: 7.6 A; 120 Volts: 6.3 A; 230-240 Volts: 3.5 A.
CL2: 100 Volts: 11.4 A; 120 Volts: 9.5 A; 230-240 Volts: 5.0 A.
CL4: 100 Volts: 8.5 A; 120 Volts: 7.1 A; 230-240 Volts: 3.7 A.
AC Line Connector: Detachable 15A IEC connector with country-specific plug.

Performance

Frequency Response, 22 Hz to 20 kHz at 1 watt:
CL1, CL2: ±0.1 dB.
CL4: ±0.25 dB.
Phase Response: ±15 degrees from 10 Hz to 20 kHz at 1 watt.
Signal to Noise Ratio, A-Weighted:
CL1, CL2: Better than 105 dB below rated 1-kHz power.
CL4: Better than 102 dB below rated 1-kHz power.
Total Harmonic Distortion (THD), at rated power: 0.5% or less.
Intermodulation Distortion (60 Hz and 7 kHz at 4:1):
CL1, CL2: Less than 0.1% at rated power to 30 dB below rated power at 8 ohms.
CL4: Less than 0.5% at rated power to 30 dB below rated power at 8 ohms.
Damping Factor (8 ohm):
CL1, CL2: Better than 600 from 10 Hz to 400 Hz.
CL4: Better than 1000 from 10 Hz to 400 Hz.
Crosstalk, 20 Hz to 20 kHz:
CL1, CL2: Better than 50 dB below rated power.
CL4: Better than 50 dB below rated power at 10 kHz.
Common Mode Rejection (CMR): Better than 40 dB from 20 Hz to 1 kHz.
DC Output Offset (Shorted Input): ±10 mV.

Controls

Level: A detented rotary level control for each channel located on the rear panel.
Power: An on/off rocker switch located on the front panel.
Mode: Two-position switch. "Stereo" operates the amplifier as two independent channels. "Bridge" bridges the two output channels for twice the output voltage.

System Solutions:

SST Modules: SST-SBSC: variable Linkwitz-Riley stereo crossover with mono-summed sub-bass outputs; SST-MX: 100-Hz Linkwitz-Riley crossover with stereo sub-bass output; SST-SX: 80-/120-Hz switchable Linkwitz-Riley crossover with mono summed sub-bass output; ScreenArray SST modules.

Indicators

Signal: A green indicator for each channel which flashes when a very low-level signal (>–40 dBm) is present at input. May be used for troubleshooting cable runs.
Clip: A red indicator for each channel which turns on when distortion becomes audible in the amplifier output.
Fault: A red indicator for each channel which indicates amplifier has muted output. Normally off. Status may be monitored remotely by plugging into back-panel RJ11 Fault jack.
Power: A blue indicator that turns on when the amplifier has been turned on and has power.

Input/Output

Input Connector (standard module): One Neutrik Combo connector for each channel (balanced ¼-inch [6.35-mm] phone jack and 3-pin female XLR connector, in parallel with a barrier strip termination).
Input Stage: Electronically balanced with precision 1% resistors.
Input Impedance: Nominally 20 k ohms balanced. Nominally 10 k ohms unbalanced.
Input Sensitivity: Channel independent. Factory set at 1.4 volts for standard 1-kHz, 8-ohm power. 26-dB gain and 0.775-volt sensitivity available as a Service Option.
Output Connectors:
All models: Four-terminal touch-proof barrier block.
Output Signal,
Stereo: Unbalanced, two-channel.
Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection

Protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Construction

Rugged steel chassis, coated with environmentally friendly powder for long life and ease of maintenance.
Cooling: Proportional speed fan.
Dimensions:
Width (all models): EIA Standard 19-inch rack mount (EIA RS-310-B);
Height (all models): 5.25-inch (13.34-cm);
Depth (behind front mounting surface):
CL1, CL2: 12.25-inch (31.11-cm);
CL4: 16.25-inch (36.56-cm).
Weight
CL1: 32.6 pounds (14.78 kg);
CL2: 40.3 pounds (18.28 kg);
CL4: 33.3 pounds (15.1 kg).
For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight.

Other Applications: CINEMA

Regulatory Certifications: THX CL1 & CL2

As part of the Contractor (CH/CL) Series, Crown provides three models (CL1, CL2 and CL4) that offer low-impedance compatibility for applications where high-power, low-impedance loads are the primary requirement. The CL Series models provide 2-, 4-, and 8-ohm options per channel. Rear-panel level controls for secure operation and precision detented level controls allow for accurate level settings in many fixed installation applications. Active crossover with signal routing available with optional System Solution Topology modules (SST-SBSC, SST-SX, SST-MX and ScreenArray SSTs).

K1
K2

Features

- Sealed chassis—no fan, no noise!
- Patented Class “I” (BCA) circuit design.
- Unmatched thermal efficiency; superior energy efficiency.
- TLC -Thermal Level Control protection subtly and dynamically reduces gain as needed.
- Significantly less component degrading heat generated.

PERFORMANCE

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo Bridge-Mono	4-ohm Bridge-Mono
K1	**750W**	**550W**	**350W**	**1,500W**
K2	**1,250W**	**800W**	**500W**	**2,500W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response: ± 0.25 dB from 20 Hz to 20 kHz. The frequency response is band limited with an 8 Hz double integrated 3rd-order Butterworth high-pass filter and a 32 kHz 7th-order Gaussian low-pass filter.

Signal to Noise Ratio (Unweighted): >100 dB below rated power.

Voltage Gain (at maximum level setting):
31.5 dB (K1) or 33.1 dB (K2) with input sensitivity set to 1.4V.
26 dB with input sensitivity set to 26 dB.

Damping Factor: > 3,000 from 10 to 400 Hz

Line Voltage Requirements: Universal power supply can be configured to operate with 100, 120, 200, 220, 230, 240, 250 VAC at 50 or 60 Hz. Adapters are available through an Authorized Crown Service Center.

Front Panel Controls

Level: A calibrated rotary level control for each channel.

Power: An on/off rocker switch.

Back Panel Controls

Input Sensitivity: A two-position switch for each channel located near each channel's input connectors. Can be set to 1.4 V for full output into an 8 ohm load or a fixed voltage gain of 26 dB.

Bridge Output: An on/off switch near each channel's input connectors which, when turned on, bridges the two output channels for twice the output voltage.

"Y" Input: An on/off switch located between the input connectors which, when turned on, parallels the two input channels.

Indicators

TLC: An LED for each channel indicates the amplifier's unique Thermal Level Control (TLC) circuitry is starting to make subtle and dynamic gain reductions to reduce heat rather than shut down. Unlike competitive amps, which may thermal out, Crown's TLC insures your show goes on.

Clip: An orange LED for each channel which turns on when distortion of any type becomes audible in the amplifier output.

IOC™: The yellow input/output comparator indicators are sensitive distortion indicators that turn on long before distortion is audible. This circuit compares the actual waveforms of the input and output and immediately alerts you of any distortion that exceeds .05% to provide dynamic proof of distortion-free performance.

Signal: A green LED for each channel which flashes dimly when a very low-level signal (as low as 10 mW) is present in the output. They flash brightly when a louder signal (at least 1 watt) is present at the output.

Enable: A green LED that illuminates when the amplifier has been turned on and has power. When first turned on, there will be a brief two-second delay while the amplifier performs a quick turn-on diagnostic, and then illuminates the enable indicator to full brightness. If no signal is present, the Enable indicator will switch to a dim level.

Input/Output

Input Connectors: One balanced 1/4-inch phone jack and one 3-pin female XLR connector for each channel.

Input Stage: Input is electronically balanced and employs precision 1% resistors.

Input Impedance: Nominally 20 k ohms balanced and 10 k ohms unbalanced.

Input Sensitivity: 1.4 volts for standard 1 kHz power, or 26 dB gain.

Output Connectors: Two sets of color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs.)

DC Output Offset: ± 10 millivolts.

Output Signal

Stereo: Unbalanced, two-channel.

Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection: Advanced protection circuitry guards against shorted outputs, open circuits, DC, mismatched loads, general overheating, high-frequency overloads, and internal faults. Also includes TLC, out-of-band filtering, inrush limiting and fuse.

Construction

Cooling: High performance passive convection cooling system allows the amplifier to drive 2-ohm loads to high music sound levels (8 dB into clip) in a 40° C (104°F) environment.

Dimensions: Standard 19-inch (48.3 cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9 cm) height and 16-inch (40.6 cm) depth behind front mounting surface.

Approximate Weight (Center of gravity is approximately 6 inches (15.2 cm) behind front mounting surface.)**:**
K1: 32 pounds (14.6 kg).
K2: 38 pounds (17.3 kg).
For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight.

Other Applications:

Regulatory Certifications:

Using patented Balanced Current Amplifier (BCA) circuitry, K Series amplifiers give you massive amounts of power while generating just one-tenth the heat of conventional amplifiers. In fact, the K2 can deliver an amazing 1,250 watts per channel into 2 ohms! No cooling fan is needed, making the amp maintenance-free. Highly efficient, the amplifier draws only 12 watts at idle, letting you realize significant savings over its life. And the sound? Tight, chest-slamming low end, crystal-clear highs and a well-defined midrange.

D-45
D-75A

Features

- Powerful AB+B class circuitry yields maximum efficiency with minumum crossover “notch” distortion.
- IOC® (Input/Output Comparator) alerts of any distortion that exceeds 0.05% to provide proof of distortion-free performance.
- Ultra-low harmonic and intermodulation distortion result in the best dynamic transfer function in the industry.
- Very low noise and wide dynamic range exceed the audio specifications for digital compact discs (CDs).
- Convection cooling system dissipates heat through the heat sinks and chassis for optimal cooling and maintenance-free operation.
- Front-panel headphone jack.

TRIED & TRUE

Power Output*

	4-ohm Dual (per channel)	8-ohm Dual (per channel)	16-ohm Dual (per channel)	8-ohm Bridge-Mono	16-ohm Bridge-Mono
D-45	**35W**	**25W**	**20W**	**70W**	**50W**
D-75A	**55W**	**40W**	**25W**	**110W**	**80W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Dual mode with both channels driven into 8-ohm loads and an input sensitivity of 26 dB gain unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (from 20 Hz to 20 kHz at 1 watt): +10 to –15 degrees.
Signal-to-Noise Ratio below rated power (20 Hz - 20 kHz): 106 dB.
Total Harmonic Distortion (THD) at full bandwidth power:
0.05% from 20 Hz to 20 kHz.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1)
from 0.25 watts to full bandwidth power: < 0.01%.
from 0.01 to 0.25 watts: < 0.05%.
Damping Factor, from DC to 400 Hz: > 400.
Crosstalk (below rated power): 100 Hz to 1 kHz, >100 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 4 to 16 ohms in Dual mode, 8 to 16 ohms in Bridge-Mono mode.
AC Line Voltages Available (±10%): 100, 120, 200, 220 and 240 VAC, 50 to 400 Hz for international units (depending on the transformer configuration). North American 120 VAC, 60 Hz units are not convertible and can only be used at the specified voltage and frequency. All units draw 15 watts or less when idle.

Controls

Power: A two-position front panel rotary on/off switch.
Level: An independent detented front-panel level control for each channel.
Dual/Mono: A jumper located inside the amplifier selects between dual and mono operation.

Indicators

Signal Presence: The green front-panel indicator for each channel flashes synchronously with the channel's output signal to indicate its presence.
Input/Output Comparator: The red Input/Output Comparator (IOC) indicator for each channel flashes if any type of distortion reaches 0.05%.

Input/Output

Input Connectors: A balanced 3-pin female Neutrik combination XLR and 1/4-inch phone connector for each channel.
Input Impedance (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Input Sensitivity: Configurable for 26 dB gain or 0.775-volt sensitivity.
Output Connectors: Barrier block terminals and stereo headphone jack. The headphone output is unpadded, and in parallel with the main amplifier outputs.
Output Signal,
Dual: Unbalanced, two channel.
Bridge-Mono: Balanced, single channel. Channel 1 controls are active; Channel 2 controls should be turned down.

Protection

Input: The inputs have series resistance that provides input overload protection. Controlled slew rate voltage amplifiers protect against radio frequencies. The AC line is fused to protect against excessive current draw.
Output: Instantaneous limiting protection for short circuits, open circuits and mismatched loads.
Turn-On: Minimum thumps. Power-up is instantaneous with no program delay.

Construction

Durable black finish on aluminum front panel with gray suede Lexan insert. Aluminum chassis provides maximum heat conduction and minimum weight.
Cooling: The amplifier is totally convection cooled. The entire aluminum chassis acts as a conductor to dissipate heat. The covers and front-panel extrusion also act as heat sinks. Much of the unit's heat is conducted through the extruded front panel. This design is used so the front panel contact with the equipment rack will also dissipate heat.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 1.75-inch (4.5-cm) height and 8.5-inch (21.6-cm) depth behind the mounting surface, and a 0.624-inch (1.6-cm) protrusion in front of the mounting surface.

Weight

Net Weight,
D-45: 8 lbs. 11 oz. (3.9 kg);
D-75A: 9 lbs. 7 oz. (4.3 kg).
Shipping Weight,
D-45: 10 lbs. 9 oz.(4.8 kg);
D-75A: 11 lbs. 4 oz. (5.1 kg).

Other Applications: RECORDING BROADCAST

Regulatory Certifications: CE UL C FC

The D-45 and D-75A are long-term standards. They are perfect for moderate power applications such as recording or broadcast studio near-field monitoring, video suite audio monitoring, a recording/broadcast headphone amp or a small paging system. Convection cooled, the highly reliable D Series is protected against shorted, open, mismatched or low-impedance loads.

XLS 202
XLS 402
XLS 602

Features

- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fan prevents excessive thermal buildup.
- Electronically balanced XLR inputs; touchproof binding post and Speakon outputs.
- Precision detented level controls, power switch, and four LEDs, which indicate clip for each channel, power and fault conditions.

EVOLUTION

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	8-ohm Bridge-Mono	4-ohm Bridge-Mono
XLS 202	250W	200W	145W	400W	500W
XLS 402	570W	400W	260W	800W	1,140W
XLS 602	840W	600W	370W	1,200W	1,680W

*Maximum average power in watts at 0.5% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Sensitivity (volts RMS) for full rated power at 4 ohms,
XLS 202: 0.725
XLS 402: 1.025
XLS 602: 1.26.
Frequency Response (at 1 watt) 22 Hz to 20 kHz: ±0.75 dB.
Phase Response (degrees at 1 watt)
at 10 Hz: –10.
at 20 kHz: +19.
Signal-to-Noise Ratio (20 Hz to 20 kHz)
A-weighted, below rated power: > 100 dB.
No weighting, below rated power: > 95 dB.
Total Harmonic Distortion (THD) at full bandwidth power, from 20 Hz to 1 kHz: < 0.5%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1) from full rated output to –40 dB: < 0.3%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: > 200.
Crosstalk (below rated power)
at 1 kHz: –82 dB.
at 20 kHz: –58 dB.
Voltage Gain (at maximum output): 31 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 8 ohms in Bridge-Mono.
AC Line Voltages Available (±10%): 120VAC, 60 Hz and 230VAC, 50 Hz.

Controls

Level: Two front-panel, black rotary level controls, one for each channel.
Power: Front-panel switch; on when in the UP position.
Circuit Breaker: Provides overload protection.

Indicators

Clip: Two front-panel red LEDs, one for each channel, illuminate when the channel's output signal is being overdriven.
Power: Green front-panel LED indicates amplifier has been turned on and AC power is available.
Fault: Yellow front-panel LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.

Input/Output

Input Connectors: One per channel; back-panel three-pin female XLR input connectors.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two 4-pole Speakon connectors (one per channel) and one pair of back-panel, 5-way binding posts per channel; accepts banana plugs, spade lugs or bare wire. (European models do not accept banana plugs).
DC Output Offset (shorted input): ±10 millivolts.
Output Signal: Stereo, unbalanced, two-channel.

Protection

XLS Series amplifiers provide extensive protection including output current limiting, DC protection, circuit breaker, and special thermal protection for the unit's transformers.

Construction

Ventilation: Flow-through ventilation from front to back.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Air Volume Requirements (per minute per unit): 80.15 ft^3 (2.27 m^3).
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 14-inch (35.6-cm) depth behind the mounting surface.

Weight

Net Weight,
XLS 202: 21.0 lbs. (9.5 kg);
XLS 402: 25.3 lbs. (11.5 kg);
XLS 602: 27.2 lbs. (12.3 kg).
Shipping Weight,
XLS 202: 26.0 lbs. (11.8 kg);
XLS 402: 30.3 lbs. (13.8 kg);
XLS 602: 32.2 lbs. (14.6 kg).

Other Applications:

Regulatory Certifications:

The XLS Series of power amplifiers from Crown represents a new era in affordable, quality power amplification. The line consists of three models in a uniform, rugged 2U chassis, incorporating the best of tried-and-true design principles and innovative features.

CP660

Features

- Six independent amplifier channels and three bridging switches provide maximum configuration flexibility.
- Separate gain controls on the back panel allow convenient level balancing of all channels.
- Super-quiet variable-speed fan with auto trigger provides silent, efficient cooling.
- Three Dual/Mono switches on the back panel give a broad range of flexibility in configuring your system.
- Compact architecture fits in a two-rack space.

6-CHANNEL

Power Output*

	Six-Channel Mode						Bridge Mode		
	1 Ch/1 load		4 Ch/4 loads		6 Ch/6 loads		2 Ch/1 load	4 Ch/2 loads	6 Ch/3 loads
	4-ohm	8-ohm	4-ohm	8-ohm	4-ohm	8-ohm	8-ohm	8-ohm	8-ohm
CP660	**130W**	**90W**	**100W**	**70W**	**75W**	**60W**	**250W**	**200W**	**150W**

*Maximum average power in watts at 0.3% THD, 1 kHz.

Specifications

Note: All measurements are related to 120VAC units 60 Hz in stereo mode with 8-ohm loads at 1-kHz at rated power unless other otherwise specified. Specifications for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Power

Load Impedance: Safe with all types of loads. Rated for 4 and 8 ohms in Dual mode, 8 ohms in Bridge mode

Required AC Mains: North American units are 120VAC, 60-Hz only; 100 and 240VAC (±10%) 50-Hz units are available.

AC Line Current (no signal):

100 Volts: 7.8 A
120 Volts: 6.5 A
240 Volts: 3.3 A.

AC Line Connector: NEMA 5-15P (15A) on North American units.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: +0/-1 dB.
Phase Response: ±15 degrees from 20 Hz to 10 kHz @ 1 watt.
Signal-to-Noise, A-weighted, below rated power: Better than 100 dB.
Total Harmonic Distortion (THD) at 1 kHz rated power: < 0.3% true THD.
Intermodulation Distortion (IMD): (60 Hz and 7 kHz @ 4:1) from rated power to 35 dB below rated power at 8 ohms: <0.25%.
Damping Factor: Greater than 250 from 20 to 400 Hz.

Input/Output

Input Connectors: Balanced three-terminal barrier block connectors.
Output Connectors: One set of 5-way, color-coded binding posts for each channel. The output connectors can accommodate banana plugs, double banana plugs, or wire as large as 10 gauge.
Input Sensitivity: 0.7 volt for rated output.
Input Impedance: 20 k ohms, balanced; 10 k ohms unbalanced.
DC Output Offset: Less than ±50 millivolts.

Protection

The CP660 amplifier is protected against shorted, open or mismatched loads; over-loaded power supplies; excessive temperature; chain destruction phenomena; input overload damage; and high-frequency blow-ups. It also protects loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Mechanical

Controls: Front panel rocker switch for power on/off; back panel Level control for each channel; three back panel two-position Dual/Mono switches (Ch. 1&2, Ch. 3&4, Ch. 5&6).
Indicators: (All located on front panel) green Signal LED for each channel; yellow Clip LED for each channel; red Temp LED; green Power LED.
Cooling: Internal heat exchangers with on-demand forced air cooling.
Dimensions: EIA Standard 19-inch rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 12.75-inch (32.3-cm) depth behind front mounting surface. Center of gravity is 6 inches (15.2 cm) behind the front mounting surface and 7 inches (17.8 cm) in from the outer edge of the left rack ear.
Weight,
Net: 30 lbs. (13.0 kg).
Shipping: 37 lbs. (17 kg).

Other Applications: CINEMA

Regulatory Certifications: CE UL C FC

The CP660 is a six-channel amplifier that will give you super flexibility and the best watts-to-dollar ratio around. With six independent channels, the CP660 takes the place of three, two-channel amplifiers, yet still fits in a standard two-rack-space chassis. It's ideal for a variety of surround-sound uses, as well as many paging, zoning, and background music applications. Plus, when you need it, you can easily bridge any pair of channels for double the power.

XLS 202
XLS 402
XLS 602

Features

- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fan prevents excessive thermal buildup.
- Electronically balanced XLR inputs; touchproof binding post and Speakon outputs.
- Precision detented level controls, power switch, and four LEDs, which indicate clip for each channel, power and fault conditions.

EVOLUTION

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	8-ohm Bridge-Mono	4-ohm Bridge-Mono
XLS 202	**250W**	**200W**	**145W**	**400W**	**500W**
XLS 402	**570W**	**400W**	**260W**	**800W**	**1,140W**
XLS 602	**840W**	**600W**	**370W**	**1,200W**	**1,680W**

*Maximum average power in watts at 0.5% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Sensitivity (volts RMS) for full rated power at 4 ohms,
XLS 202: 0.725
XLS 402: 1.025
XLS 602: 1.26.
Frequency Response (at 1 watt) 22 Hz to 20 kHz: ±0.75 dB.
Phase Response (degrees at 1 watt)
at 10 Hz: –10.
at 20 kHz: +19.
Signal-to-Noise Ratio (20 Hz to 20 kHz)
A-weighted, below rated power: > 100 dB.
No weighting, below rated power: > 95 dB.
Total Harmonic Distortion (THD) at full bandwidth power, from 20 Hz to 1 kHz: < 0.5%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1) from full rated output to –40 dB: < 0.3%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: > 200.
Crosstalk (below rated power)
at 1 kHz: –82 dB.
at 20 kHz: –58 dB.
Voltage Gain (at maximum output): 31 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 8 ohms in Bridge-Mono.
AC Line Voltages Available (±10%): 120VAC, 60 Hz and 230VAC, 50 Hz.

Controls

Level: Two front-panel, black rotary level controls, one for each channel.
Power: Front-panel switch; on when in the UP position.
Circuit Breaker: Provides overload protection.

Indicators

Clip: Two front-panel red LEDs, one for each channel, illuminate when the channel's output signal is being overdriven.
Power: Green front-panel LED indicates amplifier has been turned on and AC power is available.
Fault: Yellow front-panel LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.

Input/Output

Input Connectors: One per channel; back-panel three-pin female XLR input connectors.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two 4-pole Speakon connectors (one per channel) and one pair of back-panel, 5-way binding posts per channel; accepts banana plugs, spade lugs or bare wire. (European models do not accept banana plugs.)
DC Output Offset (shorted input): ±10 millivolts.
Output Signal: Stereo, unbalanced, two-channel.

Protection

XLS Series amplifiers provide extensive protection including output current limiting, DC protection, circuit breaker, and special thermal protection for the unit's transformers.

Construction

Ventilation: Flow-through ventilation from front to back.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Air Volume Requirements (per minute per unit): 80.15 ft^3 (2.27 m^3).
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 14-inch (35.6-cm) depth behind the mounting surface.

Weight

Net Weight,
XLS 202: 21.0 lbs. (9.5 kg);
XLS 402: 25.3 lbs. (11.5 kg);
XLS 602: 27.2 lbs. (12.3 kg).
Shipping Weight,
XLS 202: 26.0 lbs. (11.8 kg);
XLS 402: 30.3 lbs. (13.8 kg);
XLS 602: 32.2 lbs. (14.6 kg).

Other Applications: INSTALLED SOUND, CINEMA

Regulatory Certifications:

The XLS Series of power amplifiers from Crown represents a new era in affordable, quality power amplification. The line consists of three models in a uniform, rugged 2U chassis, incorporating the best of tried-and-true design principles and innovative features.

CE 1000
CE 2000
CE 4000

Features

- Handles 2-ohm loads
- Front-panel detented level controls
- Function indicators, fan-assisted cooling, short-circuit protection
- Class "I" (BCA) circuitry in CE 4000 offers extra power and efficiency
- Selectable highpass and lowpass filters in CE 4000.
- Works with SST modules that provide extra functions.

2-OHM PERFORMANCE

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm Bridge-Mono	8-ohm Bridge-Mono
CE 1000	**560W**	**450W**	**275W**	**1,100W**	**900W**
CE 2000	**975W**	**660W**	**400W**	**1,950W**	**1,320W**
CE 4000	**1,400W****	**1,200W**	**600W**	**2,800W****	**2,400W**

*Maximum average power in watts at 0.5% THD, 1 kHz.

**+200V line voltage provides 1,800W (2 ohm stereo) and 3,600W (4 ohm bridge-mono).

Specifications*

Performance

Frequency Response (at 1 watt):
CE 1000/2000: ±0.2 dB from 20 Hz to 25 kHz.
CE 4000: ±0.25 dB from 20 Hz to 20 kHz.
Phase Response (at 1 watt) 20 Hz to 20 kHz: ±15 degrees.
Signal to Noise Ratio (below rated power), 20 Hz to 20 kHz:
CE 1000/2000: >100 dB.
CE 4000: >102 dB.
Total Harmonic Distortion (THD) at rated power: 0.5% or less.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1):
CE 1000/2000, from 163 millwatts to full bandwidth power: Less than 0.1%.
CE 4000, from rated power to –30 dB at 8 ohms: Less than 0.5%.
Damping Factor from 10 Hz to 400 Hz:
CE 1000/2000: Greater than 400
CE 4000: Greater than 1000. (Measured using binding post output connectors.)
Crosstalk, below rated power, 20 Hz to 20 kHz:
CE 1000/2000: >55 dB.
CE 4000: >40 dB.
Common Mode Rejection (CMR) 20 Hz to 1 kHz: > 70 dB.
DC Output Offset (Shorted Input): ±10 mV.

Power

Load Impedance: Safe with all types of loads. Rated for 2, 4 and 8 ohms in Stereo mode, 4 and 8 ohms in Bridge-Mono mode.
Voltage Gain to 1-kHz, 8-ohm rated output:
CE 1000: 30.5 dB at 1.4-volt sensitivity; 26 dB at 2.34-volt sensitivity.
CE 2000: 32.1 dB at 1.4-volt sensitivity; 26 dB at 2.83-volt sensitivity.
CE 4000: 39.0 dB at 0.775-volt sensitivity; 33.8 dB at 1.4-volt sensitivity; 26 dB at 3.46-volt sensitivity.
Required AC Mains: 50/60 Hz,100-240 VAC (±10%).
AC Line Current (CE 4000): 100 volts: 8.5 A; 120 volts: 7.1 A; 230-240 volts: 3.7 A.
Power Draw At Idle: CE1000/2000: 90 watts; CE4000: 120 watts.

Controls & Connectors

Level: A detented rotary level control for each channel located on the front panel.
Power: An on/off rocker switch located on the front panel.
Mode: A two-position switch located on the back panel. Selects either Stereo or Bridge-Mono operation.
Sensitivity:
CE 1000/2000: Two-position switch: 1.4 volts for full output into an 8-ohm load (default setting), or a fixed voltage gain of 26 dB.
CE 4000: Three-position switch: 0.775 volts or 1.4 volts for full output into an 8-ohm load (default setting), or a fixed voltage gain of 26 dB.
Fault Jack: RJ-11 jack allows remote monitoring of amplifier Fault condition. An LED or other signaling device (not supplied) may be used.
Filter Switches (CE 4000 only),
Low Pass: A three-position switch (Flat / 80 Hz / 100 Hz) for each channel located on the back panel. Filter rolloff is 24-dB per octave.
High Pass: A four-position switch (Flat / 30 Hz / 40 Hz / 50 Hz) for each channel located on the back panel. Filter rolloff is 18-dB per octave.

System Solutions: SST modules (see CL models for description)

Accessories: CE handles. See Accessories Section for more information.

Indicators

Signal: Green LED for each channel flashes when a very low-level signal (>–40 dBm) is at input. May be used to troubleshoot cable runs.
Clip: Red LED for each channel turns on when distortion becomes audible in the amplifier output.
Fault: Red LED flashes to signal fault condition. Will also flash during normal start-up sequence.
Power: Green LED turns on when amplifier is on and has power.

Input/Output

Input Connectors (standard module): One Neutrik® Combo connector for each channel (balanced 1/4-inch [6.35-mm] phone jack and 3-pin female XLR connector, in parallel with a barrier strip termination).
Input Stage: Input is electronically balanced and employs precision 1% resistors.
Input Impedance: Nominally 20 k ohms, balanced. Nominally 10 k ohms, unbalanced.
Input Sensitivity: 1.4 volts for standard 1-kHz power, or fixed 26-dB gain. 0.775-volt sensitivity also standard on CE4 000 amplifiers; 0.775-volt sensitivity is available as a Service Option on CE 1000/2000 amplifiers.

Output

Output Connectors
CE 1000/CE 2000: Choice of 2 Neutrik Speakon® NL4MP (Models CE1000A or CE2000A), barrier plus Speakon (CE1000AS1 or CE2000AS1), or 5-way plus Speakon (CE1000AS2 orCE2000AS2);
CE 4000: Choice of 5-way plus Speakon (CE40000A004), 4 Speakon (CE40000A005), or 5-way plus barrier (CE40000A006).
Output Signal: Stereo: Unbalanced, two-channel; Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection

Protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Construction

Rugged steel chassis is coated with environmentally friendly powder for long life and ease of maintenance.
Cooling: Proportional speed fan.
Dimensions: EIA Standard 19-inch rack mount width (EIA RS-310-B), 5.25-inch (13.34-cm) height and 12.25-inch (31.11-cm) (CE 1000/2000) or 16.25-inch (36.56-cm) (CE 4000) depth behind front mounting surface. CE4000 has additional 1-inch rear rack ears.
Weight: CE 1000: 32.6 pounds (14.79 kg). CE 2000: 40.3 pounds (18.28 kg). CE 4000: 33.3 pounds (15.1 kg). For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight.

Other Applications: CINEMA

Regulatory Certifications: THX® CE 1000 & CE 2000TX

With their powerful, reliable performance, CE Series amps easily handle 2-ohm loads and are capable of chest-thumping lows. CE 4000 amplifiers feature Crown's patented, award-winning BCA® (Class "I") technology, and provide superior power output, increased efficiency, and legendary Crown® sound.
CE 4000 amplifiers feature selectable, on-board high- and low-pass filter sets, so you can easily add a sub-bass system. With all models, optional SST modules provide features like crossovers and summed bass output. Three types of output connectors are available.

*Note: All measurements related to 120-volt ,60-Hz units in stereo mode with 8-ohm loads and an input sensitivity of 26-dB gain at 1-kHz rated power unless other otherwise specified. Specifications for units supplied for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Xs500
Xs700
Xs900
Xs1200
Xs4300

Features

- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fan prevents excessive thermal buildup.
- 2-channel models have XLR-1/4-inch combo and Phoenix-style input connectors, daisy-chain XLR outputs, touch-proof binding post outputs and Speakon outputs. Xs4300 has XLR-1/4-inch combo inputs and touch-proof binding post outputs.
- Precision detented level controls, power switch, and five LEDs which indicate clip for each channel, power, AC present, temperature and fault conditions.
- Microprocessor-controlled protection system.
- Lightweight design.

POWER IN Xs

Power Output*

	2-ohm Dual** (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm** Bridge-Mono	8-ohm Bridge-Mono
Xs500	**750W**	**500W**	**400W**	**1,600W**	**1,450W**
Xs700	**900W**	**750W**	**450W**	**1,900W**	**1,645W**
Xs900	**1,100W**	**900W**	**600W**	**2,500W**	**2,100W**
X1200	**1,600W**	**1,100W**	**650W**	**3,000W**	**2,300W**
Xs4300	**—**	**300W**	**200W**	**—**	**700W**

*Refers to maximum average power in watts at 1kHz with 0.15% THD. **At 0.5% THD.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Sensitivity (volts RMS) for full rated power at 4 ohms: 1.4V
Frequency Response (at 1 watt) 22 Hz to 22 kHz: ±1 dB.
Phase Response (degrees at 1 watt, 20 Hz to 20 kHz): +5°, –18°
Signal-to-Noise Ratio:
A-weighted, below rated power: > 102 dB.
22Hz to 22kHz, below rated power: > 97 dB.
Total Harmonic Distortion (THD) at full bandwidth power, from 20 Hz to 20 kHz: <0.5%.
Intermodulation Distortion (IMD):(60 Hz and 7 kHz at 4:1) from full rated output to –40 dB: < 1%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: > 200.
Crosstalk at 1 kHz (below rated power):
Xs500: > 55 dB
Xs700: > 55 dB
Xs900: > 67 dB
Xs1200: > 65 dB
Xs4300: > 57 dB
Crosstalk at 20 kHz (below rated power):
Xs500: > 55 dB
Xs700: > 55 dB
Xs900: > 62 dB
Xs1200: > 45 dB
Xs4300: > 40 dB
Voltage Gain (at maximum level setting):
Xs500: 32:1 (30.1 dB)
Xs700: 38:1 (31.6 dB)
Xs900: 42:1 (32.5 dB)
Xs1200: 47.4:1 (33.5 dB)
Xs4300: 25:1 (27.8 dB)
Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms per channel in Stereo, 4 to 8 ohms in Bridge Mono.
AC Line Voltage and Frequency Configurations Available (±10%): 120VAC/60 Hz and 230VAC/50 Hz.Controls
Level: Two or four front-panel, gray rotary level controls, one for each channel.
Power: Front-panel switch; on when in the right-hand position.

Indicators

Signal: Two or four green LEDs, one for each channel, illuminates when the channel's input signal level is above –40 dBu.
Clip: Two or four front-panel red LEDs, one for each channel, illuminates when the channel's output signal is being overdriven.
Power: Yellow front-panel LED indicates amplifier has been turned on and AC power is available.
AC Mains: Red front-panel LED indicates the presence of AC power at the power cord, even if the amplifier is not turned on.
Fault: Red front-panel LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.
Bridge: Yellow LED indicates that amplifier is in Bridge-Mono mode (Channels 1 and 2, Channels 3 and 4 in Xs4300).
Temp: Red LED indicates that channel(s) are in thermal protect mode.

Input/Output

Input Connectors:
XLR-1/4 inch combo connectors: One per channel, 3-pin female XLR connector and TRS-1/4 inch phone jack accept balanced or unbalanced signals.
3-pin Phoenix-style connectors (2-channel models only): One per channel, accepts balanced or unbalanced signals
Input Impedance (nominal) balanced, unbalanced**:**
20 k ohms, 10 k ohms.
Output Connectors:
Balanced XLR connectors (2-channel models only): One per channel, 3-pin male XLR connector in parallel with XLR-1/4 inch combo and Phoenix-style input connectors for daisy-chain operation.
5-way binding post output connectors: One pair per channel; accept banana plugs, spade lugs or bare wire. ***Note:*** *Binding post outputs on European models come with safety plugs installed to prevent European power-cord plugs from being inserted. The top & bottom entry positions for these connectors should therefore be used with European models.*
4-pole Speakon output connector (2-channel models only): One connector per channel. Accepts a 4-pole Speakon connector.
DC Output Offset (shorted input): ±75 millivolts.
Output Signal: Stereo, unbalanced, two-channel or four-channel (Xs4300 only).

Protection

Xs Series amplifiers provide extensive protection and diagnostic capabilities, including output current limiting, microprocessor-controlled DC protection, circuit breaker, and special thermal protection for the unit's transformers.

Construction

Ventilation: Flow-through ventilation from front to back.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Air Volume Requirements (per minute per unit): 80.15 ft^3 (2.27 m^3).
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 17.22-inch (43.8-cm) depth behind the mounting surface.

Weight

Net Weight: 28 lb (12.7 kg).
Shipping Weight: 34 lb (15.4 kg)

Other Applications: TOURING

Regulatory Certifications:

The Xs Series of power amplifiers from Crown represents a new era in affordable, quality switch-mode power amplification. The line consists of four models in a uniform, rugged 2U chassis, incorporating the best of tried-and-true design principles and innovative features. The three 2-channel models in the series are the Xs500, Xs700, and Xs900. Each has identical features, except for output power. The Xs4300 is a 4-channel model. Xs Series amplifiers are professional stereo power amplifiers engineered to meet demanding audio requirements—reliably and within budget.

K1
K2

Features

- Sealed chassis—no fan, no noise!
- Patented Class “I” (BCA) circuit design.
- Unmatched thermal efficiency; superior energy efficiency.
- TLC -Thermal Level Control protection subtly and dynamically reduces gain as needed.
- Significantly less component degrading heat generated.

PERFORMANCE

	Power Output*			
	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	4-ohm Bridge-Mono
K1	**750W**	**550W**	**350W**	**1,500W**
K2	**1,250W**	**800W**	**500W**	**2,500W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response: ± 0.25 dB from 20 Hz to 20 kHz. The frequency response is band limited with an 8 Hz double integrated 3rd-order Butterworth high-pass filter and a 32 kHz 7th-order Gaussian low-pass filter.

Signal to Noise Ratio (Unweighted): >100 dB below rated power.

Voltage Gain (at maximum level setting):
31.5 dB (K1) or 33.1 dB (K2) with input sensitivity set to 1.4V.
26 dB with input sensitivity set to 26 dB.

Damping Factor: > 3,000 from 10 to 400 Hz

Line Voltage Requirements: Universal power supply can be configured to operate with 100, 120, 200, 220, 230, 240, 250 VAC at 50 or 60 Hz. Adapters are available through Crown or an Authorized Crown Service Center.

Front Panel Controls

Level: A calibrated rotary level control for each channel.

Power: An on/off rocker switch.

Back Panel Controls

Input Sensitivity: A two-position switch for each channel located near each channel's input connectors. Can be set to 1.4 V for full output into an 8 ohm load or a fixed voltage gain of 26 dB.

Bridge Output: An on/off switch near each channel's input connectors which, when turned on, bridges the two output channels for twice the output voltage.

"Y" Input: An on/off switch located between the input connectors which, when turned on, parallels the two input channels.

Indicators

TLC: An LED for each channel indicates the amplifier's unique Thermal Level Control (TLC) circuitry is starting to make subtle and dynamic gain reductions to reduce heat rather than shut down. Unlike competitive amps, which may thermal out, Crown's TLC insures your show goes on.

Clip: An orange LED for each channel which turns on when distortion of any type becomes audible in the amplifier output.

IOC™: The yellow input/output comparator indicators are sensitive distortion indicators that turn on long before distortion is audible. This circuit compares the actual waveforms of the input and output and immediately alerts you of any distortion that exceeds .05% to provide dynamic proof of distortion-free performance.

Signal: A green LED for each channel which flashes dimly when a very low-level signal (as low as 10 mW) is present in the output. They flash brightly when a louder signal (at least 1 watt) is present at the output.

Enable: A green LED that illuminates when the amplifier has been turned on and has power. When first turned on, there will be a brief two-second delay while the amplifier performs a quick turn-on diagnostic, and then illuminates the enable indicator to full brightness. If no signal is present, the Enable indicator will switch to a dim level.

Input/Output

Input Connectors: One balanced 1/4 -inch phone jack and one 3-pin female XLR connector for each channel.

Input Stage: Input is electronically balanced and employs precision 1% resistors.

Input Impedance: Nominally 20 k ohms balanced and 10 k ohms unbalanced.

Input Sensitivity: 1.4 volts for standard 1 kHz power, or 26 dB gain.

Output Connectors: Two sets of color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs).

DC Output Offset: ± 10 millivolts.

Output Signal

Stereo: Unbalanced, two-channel.

Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection

Advanced protection circuitry guards against shorted outputs, open circuits, DC, mismatched loads, general overheating, high-frequency overloads, and internal faults. Also includes TLC, out-of-band filtering, inrush limiting and fuse.

Construction

Cooling: High performance passive convection cooling system allows the amplifier to drive 2-ohm loads to high music sound levels (8 dB into clip) in a 40° C (104°F) environment.

Dimensions: Standard 19-inch (48.3 cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9 cm) height and 16-inch (40.6 cm) depth behind front mounting surface.

Approximate Weight (Center of gravity is approximately 6 inches (15.2 cm) behind front mounting surface.)**:**
K1: 32 pounds (14.6 kg).
K2: 38 pounds (17.3 kg).
For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight.

Other Applications:

Regulatory Certifications:

Using patented Balanced Current Amplifier (BCA) circuitry, K Series amplifiers give you massive amounts of power while generating just one-tenth the heat of conventional amplifiers. In fact, the K2 can deliver an amazing 1,250 watts per channel into 2 ohms! No cooling fan is needed, making the amp maintenance-free. Highly efficient, the amplifier draws only 12 watts at idle, letting you realize significant savings over its life. And the sound? Tight, chest-slamming low end, crystal-clear highs and a well-defined midrange.

I-T4000
I-T6000
I-T8000

Features

- Amazingly high power in a 2U lightweight chassis
- Global power supply with power factor correction
- Onboard DSP
- Connects to TCP/IQ™ network
  (CobraNet input available in optional CN models, coming soon)
- LCD control screen allows easy setup, diagnostics, and DSP presets for various loudspeakers.

EXCELLENCE

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Duall (per channel)	4-ohm Bridge	8-ohm Bridge
I-T4000	**1800W**	**2000W**	**1250W**	**3600W**	**4000W**
I-T6000	**2500W**	**3000W**	**1500W**	**5000W**	**6000W**
I-T8000	**3500W**	**4000W**	**2100W**	**7000W**	**8000W**

*Guaranteed minimum power in watts at rated THD, 20 Hz - 20 kHz

Specifications

Frequency Response (at 1 watt, 20 Hz - 20 kHz): ±0.25dB.
Signal to Noise Ratio below full-bandwidth rated power, A-weighted: > 105 dB
Total Harmonic Distortion (THD) at full rated power: < 0.35%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from full rated output to –35 dB: < 0.35%.
Damping Factor (20 Hz to 100 Hz, 8 ohms): > 5000.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Common Mode Rejection (CMR) (20 Hz to 1 kHz): > 50 dB.
DC Output Offset: ± 3 mV.
Input Impedance (nominal): 20 kilohms balanced, 10 kilohms unbalanced.
Maximum Input Level: +15 dBu or +22 dBu, depending on input sensitivity.
Latency (analog, digital inputs): 1.13 mS analog, 2.36 mS digital (44.1 kHz).
A/D, D/A Converters: 24-bit 96 kHz Cirrus Logic.
Digital Input: AES/EBU, 16-24 bit, 32-48 kHz. Onboard sample rate converter.
Network: Onboard TCP/IQ, compatible with standard 100 Mb Ethernet hardware.
DSP: 24-bit conversion with 32-bit, floating-point DSP processing. Has 64 assignable filters with 9 different filter types. Includes all-pass filters, over 2 seconds of delay available per channel, and dual uncorrelated-noise and sine-wave generators.
Load Supervision: Monitors the average impedance on the output of the amplifier. If the impedance falls outside the specified high/low limits, this function alerts the user via the front panel display, and via the IQwic software when amp is on an IQ Network.
Error Reporting: Reports clip errors, thermal errors, fault conditions and load monitoring errors for each channel via the front panel display and via IQwic software when amp is on an IQ Network.
Attenuators: Speed-sensitive rotary encoders, 0.5 dB steps, range 0 to –90 dB.
Load Impedance (Note: Safe with all types of loads): Stereo: 1/2/4/8/16 ohms. Bridge Mono: 2/4/8 ohms.
Input Sensitivity for rated output/8 ohms: Adjustable in 0.1V steps from 1.4V to 7.75V .
Voltage Gain:
I-T4000: 37.1 dB to 22.2 dB.
I-T6000: 37.9 dB to 23.0 dB
I-T8000: 39.3 dB to 24.5 dB
Required AC Mains: Universal AC input, 100-240VAC, 50/60 Hz (±15%). Maximum AC mains voltage 277VAC.
AC Line Connector: Five cordsets supplied with amplifier (USA, UK, European, Australia, India).Front Panel Controls and Indicators

Front Panel Indicators and Controls

Bridge Mode Indicator: Yellow LED illuminates when the amplifier is set to Bridge-Mono mode.
Ready Indicator: Green LED, one per channel, illuminates when the channel is initialized and ready to produce audio output. Indicator is off when the amplifier is in standby mode via the IQ system.
Signal Indicators: Three green LEDs per channel indicate the amplifier's input and output signal levels.
Signal: input signal is above –40 dBu
–20 dB: amplifier output is 20 dB below clipping
–10 dB: amplifier output is 10 dB below clipping.
Clip Indicator: Red LED, one per channel, illuminates when the channel's output signal reaches the onset of audible clipping. The Clip Indicator also will illuminate during Thermal Level Control (TLC) limiting.
Thermal Indicator: Red LED, one per channel, illuminates when the channel has shut down, or is very near shutting down, due to thermal stress or overload.
Fault Indicator: Red LED, one per channel, flashes when the amplifier output channel has stopped operating.
Data Indicator: Yellow LED indicates IQ Network data activity. Data indicator flashes only when the amplifier is polled for data, or is polled to see whether it is online.
Power Indicator: Blue LED indicates amplifier has been turned on and AC power is available. The LED will flash when the AC line voltage is 15% above or below the nominal rated range.
AC Mains Present Indicator: Green indicator built into power switch indicates AC power is present at the power cord and the amplifier circuit breaker is in the "on" position.
LCD Control Screen and Controls: These let the user adjust the amplifier's attenuation and muting, configure the amp, set up and view error monitoring (such as temperature and load supervision), and recall DSP presets. The presets allow the user to quickly reconfigure the amp for various applictions.
LCD Control Screen: Integrated LCD with white LED backlight, controls amplifier setup and operation.
Normal mode: Attenuation in 0.5 dB steps, Mute/Unmute, Front Panel Lockout.
Basic Menu: LCD Contrast, CH1 Sensitivity, CH2 Sensitivity, Speaker Preset, Dual/Bridge mode, Input Y.
Advanced Features Menu: Attenuator Limits, Attenuator Link, Clip Limiter, Peak Voltage Limiter, Average Power Limiter, Pink Noise Generator, AES/EBU Input Trim, Input Source, Maximum Analog Input, Amplifier Label Edit, CH1 Label Edit, CH2 Label Edit.
Menu/Exit Button: "Menu" enters the main menu. "Exit" gets out of the Menu.
Next Button: Selects the next item in the Menu.
Prev Button: Selects the previous item in the Menu
Level Controls (Encoders): These two knobs affect the Channel-1 and Channel-2 output levels. They also select Menu items and adjust parameter values that are displayed on the LCD Control Screen.
Power Switch: Push-on/push-off switch with built-in green AC mains present indicator.

Back Panel Controls, Indicators and Connectors

Power Cord Connector: Standard 20 amp IEC inlet. Voltage range is indicated above IEC inlet.
Reset Switch/Circuit Breaker: Resets circuit breaker that protects power supply.
Output Connectors: Two high-current, 50A Neutrik® Speakon® NL4MLP (mates with NL4FC), one per channel. Two pairs of high-current, 60A color-coded 5-way binding posts (for banana plugs, spade lugs or bare wire). Two male XLR passive analog loop through. XLR active/re-clocked AES/EBU digital loop through. Class 1 output wiring required.
Analog Input Connectors: A 3-pin female XLR connector for each channel.
Digital Input Connector: A 3-pin female XLR connector that accepts a digital signal in the AES/EBU format.
Ground Lift Switch: Isolates input ground from AC ground.
Network Connector: This Ethernet connector accepts an RJ-45 connector for TCP/IQ networking. Built into the connector is a yellow LINK ACT indicator that shows network activity, and a green 100Mb indicator that shows a 100Mb network connection.
Data Indicator: Yellow LED indicates IQ Network data activity. Data indicator flashes only when the amplifier is polled for data, or is polled to see whether it is online.
Preset Indicator: Yellow LED flashes to signal the number of the current preset if active.
Cooling: Dual-zone, microprocessor controlled, continuously variable speed fans, front-to-back airflow.
Front Panel: Cast aluminum with integrated handles.
Dimensions: 19 in. (48.3 cm) W x 3.5 in. (8.9 cm) H x 16.2 in. (41.1 cm) D.
Weight: 28 lbs (12.7 kg) net, 36 lbs (16.3 kg)shipping.
Included Accessories: Rear rack ears with integral EZ-Rack Pin, rack screws, operation manual, power cords, foam air filter.

Other Applications: INSTALLED SOUND

Regulatory Certifications:

The Crown® I-Tech Series offers amazing power, light weight and ease of use for touring sound and installed sound applications. Onboard DSP provides a wide array of signal processing, greatly reducing the need for rack components and rack wiring. Onboard DSP features 24-bit, 96 kHz A/D and D/A converters. All models are compatible with the IQ® Network and TCP/IQ networking. Digital audio and IQ control signals connect to the amp via a single CobraNet cable in optional CN models, available soon. Pushbutton DSP presets simplify the setup for various loudspeaker arrays. The Global Power Supply works anywhere in the world, and offers PFC (Power Factor Correction). It is a switching power supply for reduced weight. I-Tech amplifiers have the highest output voltage in the industry (200V peak), which provides clean transient peaks. The 3rd-generation patented Class I (BCA®) circuitry couples power efficiently to the load and allows low current drain. A front-panel control screen shows advanced diagnostics and status information.

Macro-Tech 3600VZ
Macro-Tech 5002VZ

Features

- Crown's Grounded Bridge design provides lower distortion and superior reliability.
- Patented ODEP (Output Device Emulation Protection) circuitry compensates for overheating and overload to keep the amplifier working when others would fail.
- Articulated VZ power supplies for each channel provide excellent crosstalk characteristics and the best power matching to your load.
- MA-3600VZ works with PIP modules and MA-5002VZ works with PIP2 modules that tailor the amplifier to suit specific applications.
- Two mono modes (Bridge-Mono and Parallel-Mono) for driving a wide range of load impedances.

VZ TECHNOLOGY

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm Bridge-Mono	8-ohm Bridge-Mono	16-ohm Bridge-Mono
MA-3600VZ	**1,800W**	**1,565W**	**1,120W**	**3,505W**	**3,140W**	**——**
MA-5002VZ	**2,500W**	**2,000W**	**1,300W**	**5,000W**	**4,000W**	**2,600W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (at 1 watt, 10 Hz to 20 kHz): ±10 degrees.
Signal-to-Noise Ratio (below rated full bandwidth power), A-weighted: > 105 dB.
Total Harmonic Distortion (THD) (at rated power):
MA-3600VZ: 20 Hz to 1 kHz: < 0.05%. 20 kHz: < 0.1%.
MA-5000VZ: < 0.05% true THD
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1):
MA-3600VZ (from 368 milliwatts to full rated output): < 0.05%.
MA-5002VZ (from rated power to 35 dB below rated power at 8 ohms): < 0.05%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: >1000.
Voltage Gain (8-ohm load, rated output at 1 kHz, at maximum level setting, ±6% or ±0.5 dB):
MA-3600VZ: 124.6:1 or 41.9-dB at 0.775-volt sensitivity; 69.2:1 or 36.8 dB at 1.4-volt sensitivity; 20:1 or 26 dB at 26-dB sensitivity.
MA-5002VZ: 132.1:1 or 42-dB at 0.775-volt sensitivity; 71:1:1 or 37 dB at 1.4-volt sensitivity; 20:1 or 26 dB at 26-dB sensitivity.
Controlled Slew Rate: > 30 volts/microsecond.

Power

Load Impedance:
MA-3600VZ: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 4 to 8 ohms in Bridge-Mono, and 1 to 2 ohms in Parallel-Mono.
MA-5002VZ: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 4 to 16 ohms in Bridge-Mono, and 1 to 4 ohms in Parallel-Mono.
Required AC Mains (±10%, –15%): 50/60 Hz; 100-, 120-, and 230- VAC (±10%) units are available. 230 VAC, 50/60 Hz units can be used with 220 and 240 VAC. 100 and 120 VAC units can draw up to 30 amps; 230 VAC units can draw up to 15 amps.
Power Draw at Idle: 90 watts or less.

Controls

Compressor (MA-5002VZ only): Controls the channel's error-driven compression. Selections include Off; Fast (4-millisecond attack, 300-millisecond release), and Slow (12-millisecond attack, 600-millisecond release).
Enable: A front-panel push button used to turn the amplifier on and off.
Input Ground Lift: A two-position switch used to isolate the input audio signal grounds from the AC (chassis) ground to help prevent ground loops. MA-3600VZ switch affects phone inputs only.
Level: A front-panel rotary detented level control, one for each channel.
Loudspeaker Offset Integration (MA-5002VZ only): Two-position switch for each channel turns on or off the loudspeaker protection, which protects against DC, off-center woofer cone movement, and unwanted subsonic and ultrasonic frequencies.
Sensitivity: Switch for each channel selects input sensitivity: 0.775 volts or 1.4 volts for standard 1-kHz power, or a 26 dB voltage gain.
Stereo/Mono: Switch selects Stereo, Bridge-Mono or Parallel-Mono mode.
VZ Mode (MA-5002VZ only): Switch for each channel controls the switching mode of the VZ power supplies.

Indicators

Enable: Green LED indicates amplifier is on and AC power is available.
Signal/IOC: Green LED for each channel flashes to show amplifier output. If a channel's output waveform differs from its input by 0.05% or more, the indicator flashes brightly to show distortion.
ODEP: Amber LED for each channel shows thermal-dynamic energy reserve. A lit indicator shows available reserve energy. If a channel has no reserve, its indicator will dim in proportion to ODEP limiting.
ILoad/ILimit (MA-5002VZ only): Two-color (green/red) LED for each channel. Green indicates load current flowing out the amplifier; red indicates maximum current is being delivered to the load.

Input/Output

Input Connectors: 3-pin female XLR and female TRS for each channel.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors,
MA-3600VZ: Two sets of 5-way, color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs).
MA-5002VZ: High-current output block accepts banana plugs, spade lugs or bare wire. A detachable output cover protects against accidental short circuits and dangerous electrical shock.
DC Output Offset (shorted input): ±10 millivolts.

Protection

Macro-Tech amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients.

Construction

Cooling: Internal heat sinks, forced-air cooling for rapid heat dissipation.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B),
MA-3600VZ: 3.5-inch (8.9-cm) height and 16-inch (40.6-cm) depth behind the mounting surface.
MA-5002VZ: 5.25-inch (13.3-cm) height and 15.875-inch (40.3-cm) depth behind the mounting surface.

Weight

Net Weight,
MA-3600VZ: 55 lbs. 1.5 oz. (25.0 kg);
MA-5002VZ: 77 lbs. 9 oz. (35.2kg).
Shipping Weight,
MA-3600VZ: 63 lbs. 10 oz. (28.9 kg);
MA-5002VZ: 88 lbs. 10 oz. (40.2 kg).

System Solutions: Both accept most PIP modules. The MA-5002VZ accepts all current IQ-PIP modules. The MA-3600VZ can accept IQ-PIP LITE module when paired with the IQ-PIP USP2 Adapter Kit (some functionality will be limited).

Other Applications: INSTALLED SOUND, PORTABLE PA

Regulatory Certifications: THX (MA-5002VZ); UL, CE, C-Tick, FC (MA-3600VZ)

Our patented variable impedance (VZ®) technology permits the Macro-Tech 3600VZ and the Macro-Tech 5002VZ to dynamically adapt to both signal and load requirements, providing the best power match to the widest range of loads. These models pack large amounts of power into a compact package while achieving ultra-low distortion and without generating excessive heat. Detented controls, PIP expandability and comprehensive status indicators are included. The Macro-Tech 5002VZ's universal power supply adapts to available voltages around the world.

Macro-Tech 602
Macro-Tech 1202
Macro-Tech 2402

Features

- Enhanced PIP2™ (Programmable Input Processor) connector accepts new accessory modules that tailor the amplifier for specific applications.
- Balanced XLR and 1/4-inch phone jacks for each channel on the standard PIP-FXQ module.
- Full Protection from shorted, open and mismatched loads, general over-heating, DC, high-frequency overloads, and full internal fault protection are provided by our "Quad-Mute" protection scheme.
- Two mono modes (Bridge-Mono and Parallel-Mono) for driving a wide range of load impedances.

ADVANCED

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm Bridge-Mono	8-ohm Bridge-Mono	16-ohm Bridge-Mono
MA-602	**400W**	**325W**	**220W**	**750W**	**655W**	**450W**
MA-1202	**675W**	**480W**	**310W**	**1,300W**	**970W**	**620W**
MA-2402	**1,050W**	**800W**	**520W**	**2,070W**	**1,585W**	**1,035W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (at 1 watt, 10 Hz to 20 kHz): ±10 degrees.
Signal-to-Noise Ratio (below rated full bandwidth power), A-weighted: > 105 dB.
Total Harmonic Distortion (THD) (at rated power),
20 Hz to 1 kHz: < 0.05%
At 20 kHz: < 0.1%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1) from 163 milliwatts to full bandwidth power: < 0.05%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: >1000.
Crosstalk (below rated power), 20 Hz to 1 kHz: > 85 dB.
Voltage Gain (at maximum level setting, ±6%)
MA-602: 35-dB gain at 0.775-volt sensitivity; 30-dB gain at 1.4-volt sensitivity.
MA-1202: 36-dB gain at 0.775-volt sensitivity; 31-dB gain at 1.4-volt sensitivity.
MA-2402: 38-dB gain at 0.775-volt sensitivity; 33-dB gain at 1.4-volt sensitivity.
Controlled Slew Rate: >13 volts/microsecond.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 4 to 16 ohms in Bridge-Mono, and 1 to 4 ohms in Parallel-Mono.
Required AC Mains (±10%, –15%): 50 /60Hz, 100-240VAC.
Power Draw at Idle: 100 watts or less.

Controls

Enable: A front panel push button used to turn the amplifier on and off.
Level: A front panel rotary control for each channel with 31 detents used to control the output level.
Stereo/Mono: A three-position back panel switch used to select Stereo, Bridge-Mono or Parallel-Mono mode.
Sensitivity: A three-position switch inside the PIP compartment used to select the input sensitivity for both channels: 0.775 volts or 1.4 volts for standard 1 kHz power, or a 26 dB voltage gain.
Reset (Macro-Tech 2402 only): A back-panel push button for each channel, used to reset the circuit breaker that protects each power supply.
Input Ground Lift: This switch on the PIP2-FXQ is used to isloate input signal grounds from chassis grond to prevent ground loops.

Indicators

(all located on front panel)

Enable: This amber indicator shows the on/off status of the low-voltage power supply.
Signal/IOC: Each channel has a green indicator that flashes to show amplifier output. If a channel's output waveform differs from its input by 0.05% or more, the indicator flashes brightly to show distortion. This function provides proof of distortion-free performance. In Parallel-Mono mode, the Channel 2 light stays on.
ODEP: Each channel has an amber indicator that shows thermal-dynamic energy reserve. Normally, each ODEP indicator is lit to show available reserve energy. In the rare event that a channel has no reserve, its indicator will dim in proportion to ODEP limiting. An ODEP indicator may also turn off under other conditions.

Input/Output

Input Connectors: Factory-installed PIP2-FXQ provides one 3-pin female XLR connector for each channel in parallel with one 1/4-inch phone jack connector for each channel.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two sets of 5-way, color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs).
DC Output Offset (shorted input): ±10 millivolts.
Output Signal: Stereo, unbalanced, two-channel.

Protection

Macro-Tech amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients.

Construction

Ventilation: Flow-through ventilation from front to side panels.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 16-inch (40.6-cm) depth behind the mounting surface.

Weight

Net Weight,
MA-602: 39 lbs. 9 oz. (17.9 kg);
MA-1202: 44 lbs. 1 oz. (20.0 kg);
MA-2402: 51 lbs. 12 oz. (23.5 kg).
Shipping Weight,
MA-602: 44 lbs. (19.9 kg);
MA-1202: 47 lbs. (21.3 kg);
MA-2402: 65 lbs. (29.5 kg).

Accessories: Cooling fan option, level control shaft lock.

System Solutions: Accepts most PIP modules. Can accept IQ-PIP LITE module when paired with the IQ-PIP USP2 Adapter Kit (some functionality will be limited).

Other Applications: INSTALLED SOUND, PORTABLE PA

Regulatory Certifications: THX, UL, cUL, CE, C-Tick, FC

The Macro-Tech® 02 Series amplifiers deliver superior sonic accuracy and enormous amounts of power from a low-profile design—perfect for touring and fixed installations. Crown's patented ODEP® (Output Device Emulation Protection) and Grounded Bridge™ output circuitry enhance reliability and virtually eliminate distortion. Dual, Bridge-Mono or Parallel-Mono modes allow you to optimize power to your loads, while IOC (Input/Output Comparator) circuitry acts as a supersensitive distortion meter, giving proof of distortion-free performance.

Macro-Tech 24x6
Macro-Tech 36x12

Features

- Unique Dual-Level Design: Each channel has a different power level for maximum amplifier utilization in biamplified and triamplified systems.
- MA-36X12: Articulated VZ® power supply for Channel 1 (3600) provides the best power matching to your load.
- Crown's Grounded Bridge design provides lower distortion and superior reliability.
- Patented ODEP (Output Device Emulation Protection) circuitry compensates for overheating and overload to keep the amplifier working when others would fail.
- IOC (Input/Output Comparator) circuitry immediately alerts of any distortion exceeding 0.05%, providing dynamic proof of distortion-free performance.

DUAL LEVEL

Power Output*

	Channel 1			Channel 2		
	2-ohms per channel	4-ohms per channel	8-ohms per channe	2-ohms per channel	4-ohms per channel	8-ohms per channel
MA-24X6	1,050W	800W	520W	400W	325W	225W
MA-36X12	1,800W	1,565W	1,120W	675W	480W	310W

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (at 1 watt, 10 Hz to 20 kHz): ±10 degrees.
Signal-to-Noise Ratio (below rated full bandwidth power), A-weighted: > 105 dB.
Total Harmonic Distortion (THD) (at rated power),
20 Hz to 1 kHz: < 0.05%.
20 kHz: < 0.1%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1),from 10 milliwatts to full rated output): < 0.05%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: >1000.
Voltage Gain (8-ohm load, rated output at 1 kHz, at maximum level setting, ±6% or ±0.5 dB),
MA-24X6: 83:1 or 38-dB gain at 0.775-volt sensitivity (CH1); 54:1 or 35-dB gain at 0.775-volt sensitivity (CH2); 20:1 or 26-dB gain at 26-dB sensitivity (CH1&CH2).
MA-36X12: 124.6:1 or 42-dB gain at 0.775-volt sensitivity (CH1); 64:1 or 36-dB gain at 0.775-volt sensitivity (CH2); 20:1 or 26-dB gain at 26-dB sensitivity (CH1&CH2).
Controlled Slew Rate,
Channel 1: > 30 volts/microsecond.
Channel 2: > 13 volts/microsecond.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 4 to 16 ohms in Bridge-Mono, and 1 to 4 ohms in Parallel-Mono.
Required AC Mains (±10%): 50/60Hz, 100-, 120-, and 230- VAC units are available. 230VAC, 50/60Hz units can be used with 220 and 240 VAC. 100 and 120 VAC units can draw up to 30 amps; 230 VAC units can draw up to 15 amps.
Power Draw at Idle: 90 watts or less.

Controls

Enable: A front-panel push button used to turn the amplifier on and off.
Level: A front-panel rotary detented level control, one for each channel.
Ground Lift Switch: This switch isolates or "lifts" the phone jack signal grounds from the AC power ground. Activating the switch inserts an impedance between the sleeve of each phone jack and the unit's AC ground to help prevent the hum that can result from a ground loop.
Input Sensitivity Switch: A three-position switch located inside the amplifier that is accessed by removing the PIP module. It is factory-set to 0.775 volts for rated 8 ohm output. It can also be set to 1.4 volts for rated output, or a voltage gain of 26 dB.
Reset Switches: Two back-panel switches used to reset the breakers that safeguard each power supply from overload.

Indicators

(all located on front panel)

Enable: A green front-panel LED that indicates amplifier has been turned on and AC power is available.
Signal/IOC: A green front-panel LED for each channel that flashes to show amplifier output. If a channel's output waveform differs from its input by 0.05% or more, the indicator flashes brightly to show distortion.
ODEP: A red front panel LED for each channel that shows thermal-dynamic energy reserve. Normally, each ODEP indicator is lit to show available reserve energy. In the rare event that a channel has no reserve, its indicator will dim in proportion to ODEP limiting.

Input/Output

Input Connectors: Factory-installed PIP2-FXQ provides one 3-pin female XLR connector for each channel in parallel with one 1/4-inch phone jack connector for each channel.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two sets of 5-way, color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs).

Protection

Macro-Tech amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients. They provide ODEP, IOC, "standby" mode, fuses (or breakers), and special thermal protection for the unit's transformers.

Construction

Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 16-inch (40.6-cm) depth behind the mounting surface.

Weight

Net Weight,
MA-24x6: 45 lbs. 4 oz. (20.5 kg).
MA-36x12: 50 lbs. (22.7kg).
Shipping Weight,
MA-24x6: 54 lbs. 11 oz. (24.8 kg).
MA-36x12: 59 lbs. (26.8 kg).

Accessories: Cooling fan option, level control shaft lock.

System Solutions: Accepts most PIP modules. Can accept IQ-PIP LITE module when paired with the IQ-PIP USP2 Adapter Kit (some functionality will be limited).

Other Applications:

Regulatory Certifications:

Our unique Macro-Tech® 24x6 and 36x12 provide practical solutions to biamplified system applications such as stage monitors. Each amp features a high- and medium-power channel in a single, low-profile unit. Both amps have separate power supplies which allow each channel to be treated as its own amplifier. In both models, Channel 1 provides high power for bass drivers, while Channel 2 provides medium power for horns and other high-frequency transducers.

Micro-Tech 600
Micro-Tech 1200
Micro-Tech 2400

Features

- Crown's Grounded Bridge design provides lower distortion and superior reliability.
- Patented ODEP (Output Device Emulation Protection) circuitry compensates for overheating and overload to keep the amplifier working when others would fail.
- High damping factor provides superior motion control over low-frequency drivers for clean, accurate low end.
- Two mono modes (Bridge-Mono and Parallel-Mono) for driving a wide range of load impedances.
- Full protection against shorted outputs, open circuits, DC, mismatched loads, general overheating, high-frequency overloads and internal faults.

WORKHORSE

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	4-ohm Bridge-Mono	8-ohm Bridge-Mono	16-ohm Bridge-Mono
MT-600	**400W**	**325W**	**220W**	**750W**	**655W**	**450W**
MT-1200	**675W**	**480W**	**310W**	**1,300W**	**970W**	**620W**
MT-2400	**1,050W**	**800W**	**520W**	**2,070W**	**1,585W**	**1,035W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (at 1 watt, 20 Hz to 20 kHz): ±10 degrees.
Signal-to-Noise Ratio (below rated full bandwidth power), A-weighted: > 105 dB.
Total Harmonic Distortion (THD) (at rated power), 20 Hz to 20 kHz: 0.1%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1),from 163 milliwatts to full bandwidth power): < 0.05%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: >1000.
Voltage Gain (at maximum level setting, ±0.5 dB):
MT-600: 35-dB gain at 0.775-volt sensitivity; 30-dB gain at 1.4-volt sensitivity; 26-dB gain at 26-dB sensitivity.
MT-1200: 36-dB gain at 0.775-volt sensitivity; 31-dB gain at 1.4-volt sensitivity; 26-dB gain at 26-dB sensitivity.
MT-2400: 38-dB gain at 0.775-volt sensitivity; 33-dB gain at 1.4-volt sensitivity; 26-dB gain at 26-dB sensitivity.
Crosstalk (below rated power, 20 Hz to 20 kHz): > 61 dB.
Common Mode Rejection (CMR)(20 Hz to 1 kHz): > 70 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 16 ohms in Stereo mode; 4 to 16 ohms in Bridge-Mono mode; 1 to 4 ohms in Parallel-Mono mode.
Required AC Mains (±10%, –15%): 50/60 Hz; 100-, 120-, and 230- VAC (±10%) units are available. 230 VAC, 50/60 Hz units can be used with 220 and 240 VAC.
Power Draw at Idle: 90 watts.
DC Output Offset (Shorted input): ±10 mV.

Controls

Power Switch: Front panel rocker switch used to turn the amplifier on and off.
Level: Back-panel rotary level control, one for each channel.
Ground Lift Switch: This switch isolates or "lifts" the phone jack signal grounds from the AC power ground. Activating the switch inserts an impedance between the sleeve of each phone jack and the unit's AC ground to help prevent the hum that can result from a ground loop.
Input Sensitivity Switch: A three-position switch located inside the amplifier behind the MT-XLR module.
Stereo/Mono: A three-position back-panel switch used to select Stereo, Bridge-Mono or Parallel-Mono mode.
Reset Switches (Micro-Tech 2400 only): Two back-panel switches used to resent the breakers that safeguard each power supply from overload.

Indicators

(all located on front panel)

Enable: A green front-panel LED that indicates amplifier has been turned on and AC power is available.
ODEP: An amber front panel LED for each channel that shows thermal-dynamic energy reserve. Normally, each ODEP indicator is lit to show available reserve energy. In the rare event that a channel has no reserve, its indicator will dim in proportion to ODEP limiting.

Input/Output

Input Connectors: One balanced 3-pin female XLR connector for each channel in parallel with one balanced 1/4-inch phone jack input for each channel.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: A pair of versatile 5-way binding posts is provided for the output of each channel. The 5-way binding posts accept banana plugs, spade lugs or bare wire. (European models do not accept banana plugs).

Protection

Micro-Tech amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients.

Construction

Cooling: Flow-through ventilation from front to side panels. Internal heat sinks with forced-air cooling.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 16-inch (40.6-cm) depth behind the mounting surface.

Weight

Net Weight,
MT-600: 36 lbs. 4 oz. (16.5 kg).
MT-1200: 41 lbs. 1 oz. (18.6 kg).
MT-2400: 46 lbs. 14 oz. (21.3 kg).
Shipping Weight,
MT-600: 41 lbs. 2 oz. (18.7 kg).
MT-1200: 45 lbs. 3 oz. (20.5 kg).
MT-2400: 55 lbs. 12 oz. (25.3 kg).

Other Applications: PORTABLE PA

Accessories: Cooling fan option, MT-BB barrier-block input module, MT-XLR input module.

Regulatory Certifications: MT-600 & MT-1200

Able to drive low-impedance loads with ease, Micro-Tech® amplifiers feature three separate power supplies for exceptional reliability and impressive power ratings. Our patented ODEP circuitry keeps the amplifier working long after others would quit. Grounded Bridge circuitry doubles the output voltage without placing output transistors in stressful configurations like conventional amplifiers. The unique forced-air cooling system dissipates heat quickly and evenly. As a result, you get maximum performance without the threat of damage to the amplifier or other system components.

Xs500
Xs700
Xs900
XS1200
Xs4300

Features

- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fan prevents excessive thermal buildup.
- 2-channel models have XLR-1/4-inch combo and Phoenix-style input connectors, daisy-chain XLR outputs, touch-proof binding post outputs and Speakon outputs. Xs4300 has XLR-1/4-inch combo inputs and touch-proof binding post outputs.
- Precision detented level controls, power switch, and five LEDs which indicate clip for each channel, power, AC present, temperature and fault conditions.
- Microprocessor-controlled protection system.
- Lightweight design.

POWER IN Xs

Power Output*

	2-ohm Dual** (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm** Bridge-Mono	8-ohm Bridge-Mono
Xs500	**750W**	**500W**	**400W**	**1,600W**	**1,450W**
Xs700	**900W**	**750W**	**450W**	**1,900W**	**1,645W**
Xs900	**1,100W**	**900W**	**600W**	**2,500W**	**2,100W**
Xs1200	**1,600W**	**1,100W**	**650W**	**3,000W**	**2,300W**
Xs4300	**—**	**300W**	**200W**	**—**	**700W**

*Refers to maximum average power in watts at 1kHz with 0.15% THD. **At 0.5% THD.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Sensitivity (volts RMS) for full rated power at 4 ohms: 1.4V
Frequency Response (at 1 watt) 22 Hz to 22 kHz: ±1 dB.
Phase Response (degrees at 1 watt, 20 Hz to 20 kHz): +5°, –18°
Signal-to-Noise Ratio:
A-weighted, below rated power: > 102 dB.
22Hz to 22kHz, below rated power: > 97 dB.
Total Harmonic Distortion (THD) at full bandwidth power, from 20 Hz to 20 kHz: <0.5%.
Intermodulation Distortion (IMD): (60 Hz and 7 kHz at 4:1) from full rated output to –40 dB: < 1%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: > 200.
Crosstalk at 1 kHz (below rated power):
Xs500: > 55 dB
Xs700: > 55 dB
Xs900: > 67 dB
Xs1200: > 65 dB
Xs4300: > 57 dB
Crosstalk at 20 kHz (below rated power):
Xs500: > 55 dB
Xs700: > 55 dB
Xs900: > 62 dB
Xs1200: > 45 dB
Xs4300: > 40 dB
Voltage Gain (at maximum level setting):
Xs500: 32:1 (30.1 dB)
Xs700: 38:1 (31.6 dB)
Xs900: 42:1 (32.5 dB)
Xs1200: 47.4:1 (33.5 dB)
Xs4300: 25:1 (27.8 dB)
Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms per channel in Stereo, 4 to 8 ohms in Bridge Mono.
AC Line Voltage and Frequency Configurations Available (±10%): 120VAC/60 Hz and 230VAC/50 Hz.Controls
Level: Two or four front-panel, gray rotary level controls, one for each channel.
Power: Front-panel switch; on when in the right-hand position.

Indicators

Signal: Two or four green LEDs, one for each channel, illuminates when the channel's input signal level is above –40 dBu.
Clip: Two or four front-panel red LEDs, one for each channel, illuminates when the channel's output signal is being overdriven.
Power: Yellow front-panel LED indicates amplifier has been turned on and AC power is available.
AC Present: Red front-panel LED indicates the presence of AC power at the power cord, even if the amplifier is not turned on.
Fault: Red front-panel LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.
Bridge: Yellow LED indicates that amplifier is in Bridge-Mono mode (Channels 1 and 2, Channels 3 and 4 in Xs4300).
Temp: Red LED indicates that channel(s) are in thermal protect mode.

Input/Output

Input Connectors:
XLR-1/4 inch combo connectors: One per channel, 3-pin female XLR connector and TRS-1/4 inch phone jack accept balanced or unbalanced signals.
3-pin Phoenix-style connectors (2-channel models only): One per channel, accepts balanced or unbalanced signals.
Input Impedance (nominal) balanced, unbalanced**:**
20 k ohms, 10 k ohms.
Output Connectors:
Balanced XLR connectors (2-channel models only): One per channel, 3-pin male XLR connector in parallel with XLR-1/4 inch combo and Phoenix-style input connectors for daisy-chain operation.
5-way binding post output connectors: One pair per channel; accept banana plugs, spade lugs or bare wire. ***Note:*** *Binding post outputs on European models come with safety plugs installed to prevent European power-cord plugs from being inserted. The top & bottom entry positions for these connectors should therefore be used with European models.*
4-pole Speakon output connector (2-channel models only): One connector per channel. Accepts a 4-pole Speakon connector.
DC Output Offset (shorted input): ±75 millivolts.
Output Signal: Stereo, unbalanced, two-channel or four-channel (Xs4300 only).

Protection

Xs Series amplifiers provide extensive protection and diagnostic capabilities, including output current limiting, microprocessor-controlled DC protection, circuit breaker, and special thermal protection for the unit's transformers.

Construction

Ventilation: Flow-through ventilation from front to back.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Air Volume Requirements (per minute per unit): 80.15 ft^3 (2.27 m^3).
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 17.22-inch (43.8-cm) depth behind the mounting surface.

Weight

Net Weight: 28 lb (12.7 kg).
Shipping Weight: 34 lb (15.4 kg)

Other Applications: PORTABLE PA

Regulatory Certifications:

The Xs Series of power amplifiers from Crown represents a new era in affordable, quality switch-mode power amplification. The line consists of four models in a uniform, rugged 2U chassis, incorporating the best of tried-and-true design principles and innovative features. The three 2-channel models in the series are the Xs500, Xs700, and Xs900. Each has identical features, except for output power. The Xs4300 is a 4-channel model. Xs Series amplifiers are professional stereo power amplifiers engineered to meet demanding audio requirements—reliably and within budget.

D-45
D-75A

Features

- Powerful AB+B class circuitry yields maximum efficiency with minumum crossover “notch” distortion.
- IOC® (Input/Output Comparator) alerts of any distortion that exceeds 0.05% to provide proof of distortion-free performance.
- Ultra-low harmonic and intermodulation distortion result in the best dynamic transfer function in the industry.
- Very low noise and wide dynamic range exceed the audio specifications for digital compact discs (CDs).
- Convection cooling system dissipates heat through the heat sinks and chassis for optimal cooling and maintenance-free operation.
- Front-panel headphone jack.

TRIED & TRUE

Power Output*

	4-ohm Dual (per channel)	8-ohm Dual (per channel)	16-ohm Dual (per channel)	8-ohm Bridge-Mono	16-ohm Bridge-Mono
D-45	**35W**	**25W**	**20W**	**70W**	**50W**
D-75A	**55W**	**40W**	**25W**	**110W**	**80W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Dual mode with both channels driven into 8-ohm loads and an input sensitivity of 26 dB gain unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (from 20 Hz to 20 kHz at 1 watt): +10 to –15 degrees.
Signal-to-Noise Ratio below rated power (20 Hz - 20 kHz): 106 dB.
Total Harmonic Distortion (THD) at full bandwidth power:
0.05% from 20 Hz to 20 kHz.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1)
from 0.25 watts to full bandwidth power: < 0.01%.
from 0.01 to 0.25 watts: < 0.05%.
Damping Factor, from DC to 400 Hz: > 400.
Crosstalk (below rated power): 100 Hz to 1 kHz, >100 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 4 to 16 ohms in Dual mode, 8 to 16 ohms in Bridge-Mono mode.
AC Line Voltages Available (±10%): 100, 120, 200, 220 and 240 VAC, 50 to 400 Hz for international units (depending on the transformer configuration). North American 120 VAC, 60 Hz units are not convertible and can only be used at the specified voltage and frequency. All units draw 15 watts or less when idle.

Controls

Power: A two-position front panel rotary on/off switch.
Level: An independent detented front-panel level control for each channel.
Dual/Mono: A jumper located inside the amplifier selects between dual and mono operation.

Indicators

Signal Presence: The green front-panel indicator for each channel flashes synchronously with the channel's output signal to indicate its presence.
Input/Output Comparator: The red Input/Output Comparator (IOC) indicator for each channel flashes if any type of distortion reaches 0.05%.

Input/Output

Input Connectors: A balanced 3-pin female Neutrik combination XLR and 1/4-inch phone connector for each channel.
Input Impedance: (nominally balanced, nominally unbalanced):
20 k ohms, 10 k ohms.
Input Sensitivity: Configurable for 26 dB gain or 0.775-volt sensitivity.
Output Connectors: Barrier block terminals and stereo headphone jack. The headphone output is unpadded, and in parallel with the main amplifier outputs.
Output Signal,
Dual: Unbalanced, two channel.
Bridge-Mono: Balanced, single channel. Channel 1 controls are active; Channel 2 controls should be turned down.

Protection

Input: The inputs have series resistance that provides input overload protection. Controlled slew rate voltage amplifiers protect against radio frequencies. The AC line is fused to protect against excessive current draw.
Output: Instantaneous limiting protection for short circuits, open circuits and mismatched loads.
Turn-On: Minimum thumps. Power-up is instantaneous with no program delay.

Construction

Durable black finish on aluminum front panel with gray suede Lexan insert. Aluminum chassis provides maximum heat conduction and minimum weight.
Cooling: The amplifier is totally convection cooled. The entire aluminum chassis acts as a conductor to dissipate heat. The covers and front-panel extrusion also act as heat sinks. Much of the unit's heat is conducted through the extruded front panel. This design is used so the front panel contact with the equipment rack will also dissipate heat.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 1.75-inch (4.5-cm) height and 8.5-inch (21.6-cm) depth behind the mounting surface, and a 0.624-inch (1.6-cm) protrusion in front of the mounting surface.

Weight

Net Weight,
D-45: 8 lbs. 11 oz. (3.9 kg);
D-75A: 9 lbs. 7 oz. (4.3 kg).
Shipping Weight,
D-45: 10 lbs. 9 oz.(4.8 kg);
D-75A: 11 lbs. 4 oz. (5.1 kg).

Other Applications: INSTALLED SOUND

Regulatory Certifications: CE UL C FC

The D-45 and D-75A are long-term standards. They are perfect for moderate power applications such as recording or broadcast studio near-field monitoring, video suite audio monitoring, a recording/broadcast headphone amp or a small paging system. Convection cooled, the highly reliable D Series is protected against shorted, open, mismatched or low-impedance loads.

K1
K2

Features

- Sealed chassis—no fan, no noise!
- Patented Class “I” (BCA) circuit design.
- Unmatched thermal efficiency; superior energy efficiency.
- TLC -Thermal Level Control protection subtly and dynamically reduces gain as needed.
- Significantly less component degrading heat generated.

PERFORMANCE

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo Bridge-Mono	4-ohm Bridge-Mono
K1	750W	550W	350W	1,500W
K2	1,250W	800W	500W	2,500W

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response: ± 0.25 dB from 20 Hz to 20 kHz. The frequency response is band limited with an 8 Hz double integrated 3rd-order Butterworth high-pass filter and a 32 kHz 7th-order Gaussian low-pass filter.

Signal to Noise Ratio (Unweighted): >100 dB below rated power.

Voltage Gain (at maximum level setting):
31.5 dB (K1) or 33.1 dB (K2) with input sensitivity set to 1.4V.
26 dB with input sensitivity set to 26 dB.

Damping Factor: > 3,000 from 10 to 400 Hz

Line Voltage Requirements: Universal power supply can be configured to operate with 100, 120, 200, 220, 230, 240, 250 VAC at 50 or 60 Hz. Adapters are available through an Authorized Crown Service Center.

Front Panel Controls

Level: A calibrated rotary level control for each channel.

Power: An on/off rocker switch.

Back Panel Controls

Input Sensitivity: A two-position switch for each channel located near each channel's input connectors. Can be set to 1.4 V for full output into an 8 ohm load or a fixed voltage gain of 26 dB.

Bridge Output: An on/off switch near each channel's input connectors which, when turned on, bridges the two output channels for twice the output voltage.

"Y" Input: An on/off switch located between the input connectors which, when turned on, parallels the two input channels.

Indicators

TLC: An LED for each channel indicates the amplifier's unique Thermal Level Control (TLC) circuitry is starting to make subtle and dynamic gain reductions to reduce heat rather than shut down. Unlike competitive amps, which may thermal out, Crown's TLC insures your show goes on.

Clip: An orange LED for each channel which turns on when distortion of any type becomes audible in the amplifier output.

IOC™: The yellow input/output comparator indicators are sensitive distortion indicators that turn on long before distortion is audible. This circuit compares the actual waveforms of the input and output and immediately alerts you of any distortion that exceeds .05% to provide dynamic proof of distortion-free performance.

Signal: A green LED for each channel which flashes dimly when a very low-level signal (as low as 10 mW) is present in the output. They flash brightly when a louder signal (at least 1 watt) is present at the output.

Enable: A green LED that illuminates when the amplifier has been turned on and has power. When first turned on, there will be a brief two-second delay while the amplifier performs a quick turn-on diagnostic, and then illuminates the enable indicator to full brightness. If no signal is present, the Enable indicator will switch to a dim level.

Input/Output

Input Connectors: One balanced 1/4-inch phone jack and one 3-pin female XLR connector for each channel.

Input Stage: Input is electronically balanced and employs precision 1% resistors.

Input Impedance: Nominally 20 k ohms balanced and 10 k ohms unbalanced.

Input Sensitivity: 1.4 volts for standard 1 kHz power, or 26 dB gain.

Output Connectors: Two sets of color-coded binding posts for banana plugs, spade lugs or bare wire (European models do not accept banana plugs.)

DC Output Offset: ± 10 millivolts.

Output Signal

Stereo: Unbalanced, two-channel.

Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection: Advanced protection circuitry guards against shorted outputs, open circuits, DC, mismatched loads, general overheating, high-frequency overloads, and internal faults. Also includes TLC, out-of-band filtering, inrush limiting and fuse.

Construction

Cooling: High performance passive convection cooling system allows the amplifier to drive 2-ohm loads to high music sound levels (8 dB into clip) in a 40° C (104°F) environment.

Dimensions: Standard 19-inch (48.3 cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9 cm) height and 16-inch (40.6 cm) depth behind front mounting surface.

Approximate Weight (Center of gravity is approximately 6 inches (15.2 cm) behind front mounting surface.)**:**
K1: 32 pounds (14.6 kg).
K2: 38 pounds (17.3 kg).
For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight

Other Applications:

Regulatory Certifications:

Using patented Balanced Current Amplifier (BCA) circuitry, K Series amplifiers give you massive amounts of power while generating just one-tenth the heat of conventional amplifiers. In fact, the K2 can deliver an amazing 1,250 watts per channel into 2 ohms! No cooling fan is needed, making the amp maintenance-free. Highly efficient, the amplifier draws only 12 watts at idle, letting you realize significant savings over its life. And the sound? Tight, chest-slamming low end, crystal-clear highs and a well-defined midrange.

Studio Reference I
Studio Reference II

Features

- Super-low harmonic and intermodulation distortion provide the best transfer function in the business.
- Ultra-high damping factor delivers superior loudspeaker motion control for the cleanest, tightest, chest-thumping bottom end you've ever felt—or heard.
- Extremely wide dynamic range.
- Crown's Grounded Bridge design provides low distortion and superior reliability.
- IOC (Input/Output Comparator) circuitry immediately alerts you of any distortion that exceeds 0.05% to provide dynamic proof of distortion-free performance.

BENCHMARK

Power Output*

	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	8-ohm Bridge-Mono	16-ohm Bridge-Mono
Studio Reference I	**1,190W**	**800W**	**2,375W**	**1,595W**
Studio Reference II	**565W**	**360W**	**1,145W**	**720W**

*Maximum average power in watts at 0.1% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.1 dB.
Phase Response (at 1 watt, 20 Hz to 20 kHz): +5 to –15 degrees.
Signal-to-Noise Ratio (below rated full bandwidth power), A-weighted:
Studio Reference I: > 120 dB.
Studio Reference II: > 117 dB.
Total Harmonic Distortion (THD) (at rated power), 20 Hz to 20 kHz: < 0.1%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1):
Studio Reference I: Less than 0.005% from full bandwidth power to 78 watts rising linearly to 0.025% at 78 milliwatts.
Studio Reference II: Less than 0.005% from full bandwidth power to 36 watts rising linearly to 0.025% at 36 milliwatts.
Damping Factor, 10 Hz to 400 Hz: >20,000.
Voltage Gain (at maximum level setting, ±1 dB):
Studio Reference I: 40-dB gain at 0.775-volt sensitivity; 35-dB gain at 1.4-volt sensitivity; 26-dB gain at 26-dB sensitivity.
Studio Reference II: 37-dB gain at 0.775-volt sensitivity; 32-dB gain at 1.4-volt sensitivity; 26-dB gain at 26-dB sensitivity.
Crosstalk (below rated power, 20 Hz to 20 kHz):
Studio Reference I: > 70 dB.
Studio Reference II: > 65 dB.
Common Mode Rejection (CMR)(20 Hz to 1 kHz): >70 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 4 to 8 ohms in Stereo mode; 8 to 16 ohms in Bridge-Mono mode; 2 to 4 ohms in Parallel-Mono mode.
Required AC Mains (±10%): 50/60Hz, 100 to 240 VAC.
Power Draw at Idle: 90 watts or less.

Controls

Enable: Front panel push button used to turn the amplifier on and off.
Level: Front-panel, 31-detent, rotary level control, one for each channel.
Ground Lift Switch: Two-position switch isolates the input phone jack and AC (chassis) grounds.
Sensitivity Switch: Selects the input sensitivity for both channels: 0.775 or 1.4 volts for standard 1 kHz power, or a 26-dB voltage gain.
Stereo/Mono: Selects Stereo, Bridge-Mono or Parallel-Mono mode.
Reset: Resets the AC mains circuit breaker.
Meter On/Off: Turns the front-panel meters on or off.
Meter Display Mode: Sets the display mode for the front-panel meters: dynamic range of the output signal in dB or output levels in dB.

Indicators

Enable: Shows the on/off status of the unit's low-voltage power supply.
Signal: Flashes to show audio output in each channel.
IOC: Flashes if the output waveform differs from the input waveform by 0.05% or more. The LEDs act as sensitive distortion indicators to provide *proof of distortion-free performance.* In Parallel-Mono mode, the Channel 2 IOC light stays on.
ODEP: An LED for each channel shows thermal-dynamic energy reserve. Lit LED incdicates available reserve energy. If a channel has no reserve, its indicator will dim in proportion to ODEP limiting.
Dynamic Range/Level Meter: Displays either the dynamic range of the output signal in dB (factory default), or the output level in dB. As dynamic range meters, they show the ratio of the peak to average power of each channel. As output level meters, they show the output levels relative to standard 1 kHz power.

Input/Output

Input Connectors: Two balanced phone jacks on the back panel and two balanced three-pin XLR connectors on the factory-installed P.I.P.-FX module.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two sets of color-coded, 5-way binding posts accept banana plugs, spade lugs or bare wire. (European models do not accept banana plugs.)
Output Impedance: Less than 10 milliohms in series with 2.5 microhenries.
DC Output Offset (shorted input): ±2 millivolts.

Protection

Studio Reference amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients by means of a 4-second turn-on delay.

Construction

Cooling: Convection cooling with assistance from the computerized, on-demand proportional cooling fan.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 7-inch (17.8-cm) height and 16-inch (40.6-cm) depth behind the mounting surface.

Weight

Net Weight,
Studio Reference I: 60 lbs. 11 oz. (27.6 kg);
Studio Reference II: 56 lbs. 2 oz. (25.5 kg).
Shipping Weight,
Studio Reference I: 74 lbs. 3 oz. (33.7 kg);
Studio Reference II: 69 lbs. 10 oz. (31.6 kg).

Other Applications: High-end home audio

CINEMA

System Solutions: Accepts most PIP modules. Can accept IQ-PIP Lite module when paired with the IQ-PIP USP2 Adapter Kit (some functionality will be limited).

Regulatory Certifications: THX Studio Reference I; FC Studio Reference II

Studio Reference Series™ amplifiers are engineered for the critical demands of recording studios. Featuring an extremely wide dynamic range and ultra-low harmonic and intermodulation distortion, these amps provide the best sonic accuracy in the business. They also feature a damping factor of better than 20,000 for a tight, well-defined low end. Patented ODEP circuits detect and compensate for any demanding load condition, while optional PIP modules let you customize the amplifier to your needs.

CTs 600
CTs 1200
CTs 2000
CTs 3000

Features

- High power density. All two channel models in a 2U chassis.
- New Crown Switching Power Supply for lighter weight.
- Provides “Constant-Voltage” or low-impedance operation per channel.
- 100V direct outputs on CTs 2000, CTs 3000.
- Fully PIP2-compatible.

FOUNDATION

Power Output*

	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	16-ohm Dual (per channel)	70V Dual (per channel)	100V Dual (per channel)	4-ohm Bridge	8-ohm Bridge	16-ohm Bridge	140V Bridge	200V Bridge
CTs 600	150W	300W	300W	300W	300W	—	600W	600W	600W	—	—
CTs 1200	250W	600W	600W	300W	600W	—	1,200W	1,200W	1,200W	—	—
CTs 2000	1,000W	1,000W	1,000W	625W	1,000W	1,000W	2,000W	2,000W	2,000W	2,000W	2,000W
CTs 3000	1,500W	1,500W	1,250W	625W	1,500W	1,500W	3,000W	3,000W	2,500W	3,000W	3,000W

*Maximum average power in watts at rated THD, 20 Hz - 20 kHz

Specifications

The following applies to units in Dual mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.25 dB.
Signal-to-Noise Ratio, A-weighted, below rated power (20 Hz to 20 kHz) < 105 dB.
Total Harmonic Distortion (THD) at full rated power from 20 Hz to 20 kHz
CTs 600 & CTs 1200: < 0.1%.
CTs 2000 & CTs 3000: < 0.35%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from 163 milli-watts to full bandwidth power: < 0.05% (typical).
Damping Factor, 10 Hz to 100 Hz: >3000.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Voltage Gain (at maximum level setting)
8/4-ohm operation, 1.4V sensitivity
CTs 600: 35:1 (31 dB).
CTs 1200: 50:1 (34 dB).
CTs 2000: 63.9:1 (36 dB).
CTs 3000: 71.4:1 (37 dB).
26 dB: 20:1 (26 dB)
70V operation, 1.4V sensitivity (all models) and 100V operation, 2.0V sensitivity (CTs 2000 & CTs 3000): 50:1 (34 dB)
Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical): 50 dB
Maximum Input Level: + 20 dBu before input compression, +32 dBu absolute maximum.

Power

Load Impedance: Safe with all types of loads.
CTs 600 & CTs 1200: Stereo, 2 to 16 ohms and 70V; Mono, 4 to 16 ohms and 140V.
CTs 2000 & CTs 3000: Stereo, 2 to 16 ohms, 70V and 100V; Mono, 4 to 16 ohms, 140V and 200V.
AC Line Voltages Available (+15%, –25%): 120VAC, 60 Hz and 230VAC, 50 Hz.
Power Draw at Idle (120VAC mains)
CTs 600 & CTs 1200: 24W (standby mode)
CTs 2000 & CTs 3000: 35W (standby mode)

Controls and Indicators

Front Panel Indicators: Bridge Mode, Ready, Signal, Clip, Thermal, Fault, Data, Power.

Back Panel Controls and Connectors

Power Cord Connector: IEC
Reset Switch: Resets the power circuit breaker.
Channel Level C ontrols: 21-position detented, one per channel.
Level Attenuation: Approx. –95 dB to 0 dB gain.
High-Pass Filter: One three-position switch per channel selects between OFF, 35 Hz and 70 Hz 3rd-order filters.
Mode Switch: Two-position switch is used to select the amplifier's mode of operation: Dual or Bridge-Mono.
"Y" Input Swtich: When set to ON, this switch parallels the input signals of the two channels, for use when the input signal is mono. Also can be used to daisy-chain the signal to another amplifier.

Input/Output

Input Connectors: Balanced 3-pin terminal block connectors, one per channel, on the standard PIP2™-BBY module.
Input Impedance: (nominally balanced, nominally unbalanced): 10 k ohms, 5 k ohms.
Output Connectors: One four-pole touch-proof terminal strip. Accepts up to 10 AWG terminal forks.
DC Output Offset (shorted input): < 2 millivolts.

Protection

CTs Series amplifiers provide extensive protection and diagnostic capabilities, including Thermal Level Control (TLC), fault, low-pass filters, high-pass filters, AC under/over voltage protection, DC output servo, circuit breaker, inrush limiting, and Junction Temperature Simulation (JTS) in CTs 600/1200.

Construction

Ventilation: Front-to-rear forced airflow. Two continuously variable speed fans direct the airflow through the amplifier for cooling.
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 14.25-inch (36.2-cm) depth behind the mounting surface.

Weight

Net Weight,
CTs 600: 22.8 lbs. (10.3 kg);
CTs 1200: 23.4 lbs. (10.6 kg);
CTs 2000: 27.0 lbs. (12.2 kg).
CTs 3000: 27.7 lbs. (12.6 kg).
Shipping Weight,
CTs 600: 27.7 lbs. (12.6 kg);
CTs 1200: 28.3 lbs. (12.8 kg);
CTs 2000: 32.0 lbs. (14.5 kg).
CTs 3000: 32.7 lbs. (14.8 kg).

System Solutions: IQ® PIP™ LITE, IQ-PIP USP3, IQ-PIP USP3/CN, PIP-3632, PIP-4622, PIP-4632 and PIP-USL.

Accessories:

T-170V: This is an autoformer that allows 100V output from the CTs 8200, and allows other amplifiers without direct constant voltage output to be easily integrated into distributed systems.
TP-170V: This is a rack-mountable panel with four autoformers as described above.

Other Applications: INSTALLED SOUND

Regulatory Certifications:

Building on the foundation of the Com-Tech Series, Crown's CTs Series offers new flexibility and value for installed sound applications. The Com-Tech Series were the first to offer independent selection of high- and low-impedance operation for a specific channel, and CTs Series amplifiers continue that tradition, with power levels and features carefully chosen to perfectly integrate into fixed install design requirements.

CTs 4200
CTs 8200

Features

- High power density: Four-channel model in a 2U chassis, eight-channel model in a 3U chassis.
- New Crown Switching Power Supply for lighter weight.
- Selectable “Constant-Voltage” or low-impedance (4/8 ohm) operation per channel-pair.
- 100V direct outputs.
- New “FIT” (Fault Isolation Topology) design isolates fault conditions without affecting neighboring channels.
- Accept new MC accessory modules.

FLEXIBILITY

Power Output*

	All channels driven			1 channel driven			All channel pairs driven			1 channel pair driven		
	4-ohm Dual (per ch)	8-ohm Dual (per ch)	70V Dual (per ch)	4-ohm Dual (per ch)	8-ohm Dual (per ch)	70V Dual (per ch)	8-ohm Bridge (per ch pair)	16-ohm Bridge (per ch pair)	100V Bridge (per ch pair)	8-ohm Bridge (per ch pair)	16-ohm Bridge (per ch pair)	100V Bridge (per ch pair)
CTs 4200	**260W**	**200W**	**220W‡**	**270W**	**220W**	**250W‡**	**520W**	**400W**	**220W‡**	**560W**	**440W**	**250W‡**
CTs 8200	**200W**	**160W**	**200W‡**	**270W**	**220W**	**250W‡**	**400W**	**320W**	**200W‡**	**540W**	**440W**	**250W‡**

*Maximum average power in watts at 1 kHz at 0.1% THD.

‡Constant Voltage full-bandwidth power ratings support 100 Hz to 20 kHz due to automatic high-pass filters.

Specifications

Performance

Frequency Response (at 1 watt) 20 Hz to 20 kHz: ±0.5 dB.
Phase Response (at 1 watt) 10 Hz to 20 kHz: ±35°.
Signal-to-Noise Ratio, unweighted, below rated power (20 Hz to 20 kHz): 100 dB.
Total Harmonic Distortion (THD) at full rated power, from 20 Hz to 20 kHz: < 0.1%.
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from 163 milliwatts to full bandwidth power: < 0.05% (typical).
Damping Factor, 10 Hz to 400 Hz: >180.
Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.
Voltage Gain (at maximum level setting) 1.4V sensitivity
8/4-ohm operation: 20:1 (26 dB).
70V operation: 50:1 (34 dB).
100V operation: 71.4:1 (37 dB).
Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical): > 50 dB.
DC Output Offset (Shorted input): < ±5 mV.
Maximum Input Level before input compression: + 20 dBu.

Power

Load Impedance: Safe with all types of loads.
Stereo: 4/8 and 25 ohms (70V) .
Mono: 8/16 and 50 ohms (100V).
Required AC Mains: 120VAC, 60 Hz and 220/230/240VAC, 50 Hz.
Power Draw at Idle (120VAC mains, all channels in 4/8 ohm mode): 70W.

Front Panel Indicators:

Bridge Mode, Ready, Signal, Clip, Thermal, Fault, Data, Power.

Back Panel Controls and Connectors:

Power Cord Connector: IEC.
Reset Switch: Resets the power circuit breaker.
Channel Level Controls: 21-position detented, one per channel.
Level Attenuation: Minus infinity (–70 dB) to 0 dB gain.
35-Hz High-Pass Filter: A fixed 35-Hz highpass filter per channel pair is automatically inserted when the mode switch is set to either of the constant-voltage settings. The high-pass filter corner frequency can be set to 70 Hz, or bypassed, with a service option.
Mode Switch: Used on each consecutive pair of channels, this four-position switch is used to select the amplifier's mode of operation: Dual 8/4 ohms, Dual 70V, Bridge-Mono 16/8 ohms,and Bridge-Mono 100V.

Input/Output

Input Connectors: Removable Phoenix™-style barrier connectors for balanced input.
Input Impedance: (nominal:
20 k ohms balanced, 10 k ohms unbalanced.
Output Connectors: One four-pole touch-proof terminal strip for every two channels, with touch-proof cover. Accepts up to 10 AWG terminal forks.

Protection

CTs Multi-channel Series amplifiers provide extensive protection and diagnostic capabilities, including Thermal Level Control (TLC), fault, FIT protected circuitry, AC under/over voltage protection, power fuse, and inrush limiting.

Construction

Ventilation: Front-to-rear forced airflow. Continuously variable speed fans (four in the CTs 8200, one in the CTs 4200) direct the airflow through the amplifier for cooling.
Dimensions
CTs 4200: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 16.25-inch (41.3-cm) depth behind the mounting surface.
CTs 8200: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 5.25-inch (13.3-cm) height and 16.25-inch (41.3-cm) depth behind the mounting surface.

Weight

Net Weight
CTs 4200: 27 lb 8 oz (12.5 kg);
CTs 8200: 36 lb 6 oz (16.5 kg);
Shipping Weight
CTs 4200: 32 lb (14.5 kg).
CTs 8200: 47 lbs. (21.3 kg);

System Solutions:

IQ-MC4A: IQ module for CTs 4200;
IQ-MC8: IQ module for CTs 8200;
VCA-MC4: VCA module for CTs 4200;
VCA-MC8: VCA module for CTs 8200.

IQ modules allow remote monitoring and control.
VCA modules allow remote volume control.

Accessories:

Wall-mount level control panels for use with VCA module:
1-VCAP: 1-gang panel with 1 VCA channel volume control;
4-VCAP: 2-gang panel with 4 VCA channel volume controls.

Accessories (cont.):

T-170V: This is an autoformer that allows 100V output from the CTs 8200, and allows other amplifiers without direct constant voltage output to be easily integrated into distributed systems.
TP-170V: This is a rack-mountable panel with four autoformers as described above.

Other Applications:

Regulatory Certifications:

Crown's CTs Multi-channel Series offers wide flexibility for a wide range of installed sound applications. CTs Multi-channel Series amplifiers offer independent selection of high-and low-impedance operation for each channel pair, making these amps ideal for multi-zone installations. New Crown MC accessory modules provide enhanced control, monitoring, and system integration, including IQ System compatibility.

CL1
CL2
CL4

Features

- Low impedance compatibility for applications where high-power, low-impedance loads are the primary requirement.
- Rear panel detented level controls allow for accurate level settings and secure operation.
- “Contractor Correct” barrier strip output connectors allow for quick and easy connection, regardless of the load.
- Active crossover with signal routing available with optional System Solution Topology modules.
- Accurate, uncolored sound with very low distortion for the best in music and voice reproduction.

POWERFUL

	Power Output*				
	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	4-ohm Bridge Mono	8-ohm Bridge Mono
CL1	560W	450W	275W	1,100W	900W
CL2	975W	660W	400W	1,950W	1,320W
CL4	1,400W**	1,200W	600W	2,800W**	2,400W

*Maximum average power in watts at 0.5% THD, 1 kHz.

**+200V line voltage provides 1,800W (2 ohm stereo) and 3, 600W (4 ohm bridge-mono).

Specifications

Note: All measurements apply to all models of CL series amplifiers in stereo mode with 8-ohm loads and an input sensitivity of 26-dB gain, 1-kHz at rated power unless other otherwise specified. Specifications for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Power

Load Impedance: Safe with all types of loads.
All models: 2, 4 and 8 ohm Stereo; 4, 8 and 16 ohm Bridge.
Voltage Gain, 1 kHz, 1.4V sensitivity,
CL1: 30.5 dB at 4/8 ohm.
CL2: 32.1 dB at 4/8 ohm.
CL4: 34 dB at 4/8 ohm.
AC Line Requirements: North American CL1, and CL2 units are 100 volts or 120 volts, 60 Hz only. All other models 230-240 volts are 50/60 Hz. Voltages are ±10%.
AC Line Current (no signal):
CL1: 100 Volts: 7.6 A; 120 Volts: 6.3 A; 230-240 Volts: 3.5 A.
CL2: 100 Volts: 11.4 A; 120 Volts: 9.5 A; 230-240 Volts: 5.0 A.
CL4: 100 Volts: 8.5 A; 120 Volts: 7.1 A; 230-240 Volts: 3.7 A.
AC Line Connector: Detachable 15A IEC connector with country-specific plug.

Performance

Frequency Response, 22 Hz to 20 kHz at 1 watt:
CL1, CL2: ±0.1 dB.
CL4: ±0.25 dB.
Phase Response: ±15 degrees from 10 Hz to 20 kHz at 1 watt.
Signal to Noise Ratio, A-Weighted:
CL1, CL2: Better than 105 dB below rated 1-kHz power.
CL4: Better than 102 dB below rated 1-kHz power.
Total Harmonic Distortion (THD), at rated power: 0.5% or less.
Intermodulation Distortion (60 Hz and 7 kHz at 4:1):
CL1, CL2: Less than 0.1% at rated power to 30 dB below rated power at 8 ohms.
CL4: Less than 0.5% at rated power to 30 dB below rated power at 8 ohms.
Damping Factor (8 ohm):
CL1, CL2: Better than 600 from 10 Hz to 400 Hz.
CL4: Better than 1000 from 10 Hz to 400 Hz.
Crosstalk, 20 Hz to 20 kHz:
CL1, CL2: Better than 50 dB below rated power.
CL4: Better than 50 dB below rated power at 10 kHz.
Common Mode Rejection (CMR): Better than 40 dB from 20 Hz to 1 kHz.
DC Output Offset (Shorted Input): ±10 mV.

Controls

Level: A detented rotary level control for each channel located on the rear panel.
Power: An on/off rocker switch located on the front panel.
Mode: Two-position switch. "Stereo" operates the amplifier as two independent channels. "Bridge" bridges the two output channels for twice the output voltage.

Indicators

Signal: A green indicator for each channel which flashes when a very low-level signal (>–40 dBm) is present at input. May be used for troubleshooting cable runs.
Clip: A red indicator for each channel which turns on when distortion becomes audible in the amplifier output.
Fault: A red indicator for each channel which indicates amplifier has muted output. Normally off. Status may be monitored remotely by plugging into back-panel RJ11 Fault jack.
Power: A blue indicator that turns on when the amplifier has been turned on and has power.

Input/Output

Input Connector (standard module): One Neutrik Combo connector for each channel (balanced 1/4-inch [6.35-mm] phone jack and 3-pin female XLR connector, in parallel with a barrier strip termination).
Input Stage: Electronically balanced with precision 1% resistors.
Input Impedance: Nominally 20 k ohms balanced. Nominally 10 k ohms unbalanced.
Input Sensitivity: Channel independent. Factory set at 1.4 volts for standard 1-kHz, 8-ohm power. 26-dB gain and 0.775-volt sensitivity available as a Service Option.
Output Connectors:
All models: Four-terminal touch-proof barrier block.
Output Signal,
Stereo: Unbalanced, two-channel.
Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection

Protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Construction

Rugged steel chassis, coated with environmentally friendly powder for long life and ease of maintenance.
Cooling: Proportional speed fan.

Dimensions

Width (all models): EIA Standard 19-inch rack mount (EIA RS-310-B);
Height (all models): 5.25-inch (13.34-cm);
Depth (behind front mounting surface): CL1, CL2: 12.25-inch (31.11-cm); **CL4:** 16.25-inch (36.56-cm).

Weight

CL1: 32.6 pounds (14.78 kg); **CL2:** 40.3 pounds (18.28 kg);
CL4: 33.3 pounds (15.1 kg).
For shipping weight, add 6 pounds (2.7 kg) to each amplifier's weight.

System Solutions:

SST Modules: SST-SBSC: variable Linkwitz-Riley stereo crossover with mono-summed sub-bass outputs; SST-MX: 100-Hz Linkwitz-Riley crossover with stereo sub-bass output; SST-SX: 80-/120-Hz switchable Linkwitz-Riley crossover with mono summed sub-bass output; ScreenArray SST modules.

Other Applications: INSTALLED SOUND

Regulatory Certifications: THX CL1 & CL2

As part of the Contractor (CH/CL) Series, Crown provides three models (CL1, CL2 and CL4) that offer low-impedance compatibility for applications where high-power, low-impedance loads are the primary requirement. The CL Series models provide 2-, 4-, and 8-ohm options per channel. Rear-panel level controls for secure operation and precision detented level controls allow for accurate level settings in many fixed installation applications. Active crossover with signal routing available with optional System Solution Topology modules (SST-SBSC, SST-SX, SST-MX and ScreenArray SSTs).

CE-1000
CE-2000TX

Features

- THX® approved.
- Front-panel detented level controls.
- Function indicators, fan-assisted cooling, short-circuit protection.
- Selectable highpass and lowpass filters.
- Works with SST modules that provide extra functions, such as signal processing for JBL ScreenArray™ cinema speaker systems.

THX CERTIFIED

	Power Output*				
	2-ohm Dual (per channel)	4-ohm Dual (per channel)	8-ohm Dual (per channel)	4-ohm Bridge-Mono	8-ohm Bridge-Mono
CE 1000	**560W**	**450W**	**275W**	**1,100W**	**900W**
CE 2000TX	**—**	**660W**	**400W**	**—**	**1,320W**

*Maximum average power in watts at 0.5% THD, 1 kHz.)

Specifications

Note: All measurements related to 120-volt ,60-Hz units in stereo mode with 8-ohm loads and an input sensitivity of 26-dB gain at 1-kHz rated power unless other otherwise specified. Specifications for units supplied for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Performance

Frequency Response (at 1 watt): ±0.2 dB from 20 Hz to 25 kHz.
Phase Response (at 1 watt) 20 Hz to 20 kHz: ±15 degrees.
Signal to Noise Ratio (below rated power), 20 Hz to 20 kHz: >100 dB
Total Harmonic Distortion (THD) at rated power from 20 Hz to 20 kHz: 0.5% or less.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1) from 163 millwatts to full bandwidth power: < 0.1%.
Damping Factor from 10 Hz to 400 Hz: Greater than 400.
Crosstalk, below rated power, 20 Hz to 20 kHz: >55 dB.
Common Mode Rejection (CMR) 20 Hz to 1 kHz: > 70 dB.
DC Output Offset (Shorted Input): ±10 mV.

Power

Load Impedance: Safe with all types of loads. CE-1000 is rated for 2, 4 and 8 ohms in Stereo mode; 4 and 8 ohms in Bridge-Mono mode. CE-2000TX is rated for 4 and 8 ohms in Stereo mode; 8 ohms in Bridge-Mono mode.
Voltage Gain to 1-kHz, 8-ohm rated output:
CE 1000: 30.5 dB at 1.4-volt sensitivity; 26 dB gain at 2.34-volt sensitivity.
CE 2000TX: 32.1 dB at 1.4-volt sensitivity; 26 dB at 2.83-volt sensitivity.
Required AC Mains: 50/60 Hz,100-240 VAC (±10%).
Power Draw At Idle: 90 watts.

Controls & Connectors

Level: A detented rotary level control for each channel located on the front panel.
Power: An on/off rocker switch located on the front panel.
Mode: A two-position switch located on the back panel. Selects Stereo or Bridge-Mono operation.
Sensitivity:
Two-position switch: 1.4 volts for full output into an 8-ohm load (default setting), or a fixed voltage gain of 26 dB.
Fault Jack: RJ11 jack allows remote monitoring of amplifier Fault condition. An LED or other signaling device (not supplied) may be used.

Indicators

Signal: Green LED for each channel flashes when a very low-level signal (> –40 dBm) is at input. May be used to troubleshoot cable runs.
Clip: Red LED for each channel turns on when distortion becomes audible in the amplifier output.
Fault: Red LED flashes to signal fault condition. Will also flash during normal start-up sequence.
Power: Green LED turns on when amplifier is on and has power.
Reset: Front-panel switch resets the power circuit breaker.

Input/Output

Input Connector (standard module): One Neutrik® Combo connector for each channel (balanced 1/4-inch [6.35-mm] phone jack and 3-pin female XLR connector, in parallel with a barrier strip termination).
Input Stage: Input is electronically balanced and employs precision 1% resistors.
Input Impedance: Nominally 20 k ohms, balanced. Nominally 10 k ohms, unbalanced.
Input Sensitivity: 1.4 volts for standard 1-kHz power, or fixed 26-dB gain. 0.775-volt sensitivity is available as a Service Option.

Output

Output Connectors: Choice of 2 Neutrik Speakon® NL4MP (Models CE1000A or CE2TX000A001), barrier plus Speakon (CE1000AS1 or CE2TX000A002), or 5-way plus Speakon (CE1000AS2 or CE2TX000Z003).
Output Signal: Stereo: Unbalanced, two-channel; Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should be turned down.

Protection

Protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature, chain destruction phenomena, input overload damage and high-frequency blowups. They also protect loudspeakers from input/output DC, large or dangerous DC offsets and turn-on/turn-off transients.

Construction

Rugged steel chassis is coated with environmentally friendly powder for long life and ease of maintenance.
Cooling: Proportional speed fan.
Dimensions: EIA Standard 19-inch rack mount width (EIA RS-310-B), 5.25-inch (13.34-cm) height and 12.25-inch (31.11-cm) depth behind front mounting surface.
Weight:
CE 1000: 32.6 pounds (14.79 kg).
CE 2000TX: 40.3 pounds (18.28 kg).
For shipping weight, add 6 pounds (2.7 kg).

System Solutions:

SST Modules: SST-4622, SST-3632, SST-4632; SBSC-4632T, SBSC-3632T.

Accessories: CE handles, CE-S1 Speakon-to-barrier output, CE-S2 Speakon-to-5-way output, CEAS1 barrier block output, CEAS2 5-way output.

Regulatory Certifications: THX® ETL LISTED 51519 CE FC
CE-1000 & CE-2000TX

With their powerful, reliable performance, the CE-1000 and CE-2000TX are capable of chest-thumping lows. The CE-1000 can easily handle 2-ohm loads. Optional SST modules provide features like processing for JBL ScreenArray™ cinema speaker systems. Three types of output connectors are available.

XLS 202
XLS 402
XLS 602

Features

- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fan prevents excessive thermal buildup.
- Electronically balanced XLR inputs; touchproof binding post and Speakon outputs.
- Detented level controls, power switch, and four LEDs, which indicate clip for each channel, power and fault conditions.

EVOLUTION

Power Output*

	2-ohm Stereo (per channel)	4-ohm Stereo (per channel)	8-ohm Stereo (per channel)	8-ohm Bridge-Mono	4-ohm Bridge-Mono
XLS 202	250W	200W	145W	400W	500W
XLS 402	570W	400W	260W	800W	1,140W
XLS 602	840W	600W	370W	1,200W	1,680W

*Maximum average power in watts at 0.5% THD, 1 kHz.

Specifications

The following applies to units in Stereo mode with 8-ohm loads and rated input sensitivity unless otherwise specified.

Performance

Sensitivity (volts RMS) for full rated power at 4 ohms,
XLS 202: 0.725
XLS 402: 1.025
XLS 602: 1.26.
Frequency Response (at 1 watt) 22 Hz to 20 kHz: ±0.75 dB.
Phase Response (degrees at 1 watt)
at 10 Hz: –10.
at 20 kHz: +19.
Signal-to-Noise Ratio (20 Hz to 20 kHz)
A-weighted, below rated power: > 100 dB.
No weighting, below rated power: > 95 dB.
Total Harmonic Distortion (THD) at full bandwidth power, from 20 Hz to 1 kHz: < 0.5%.
Intermodulation Distortion (IMD) (60 Hz and 7 kHz at 4:1) from full rated output to –40 dB: < 0.3%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: > 200.
Crosstalk (below rated power)
at 1 kHz: –82 dB.
at 20 kHz: –58 dB.
Voltage Gain (at maximum output): 31 dB.

Power

Load Impedance: Safe with all types of loads. Rated for 2 to 8 ohms in Stereo, 8 ohms in Bridge-Mono.
AC Line Voltages Available (±10%): 120VAC, 60 Hz and 230VAC, 50 Hz.

Controls

Level: Two front-panel, black rotary level controls, one for each channel.
Power: Front-panel switch; on when in the UP position.
Circuit Breaker: Provides overload protection.

Indicators

Clip: Two front-panel red LEDs, one for each channel, illuminate when the channel's output signal is being overdriven.
Power: Green front-panel LED indicates amplifier has been turned on and AC power is available.
Fault: Yellow front-panel LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.

Input/Output

Input Connectors: One per channel; back-panel three-pin female XLR input connectors.
Input Impedance: (nominally balanced, nominally unbalanced): 20 k ohms, 10 k ohms.
Output Connectors: Two 4-pole Speakon connectors (one per channel) and one pair of back-panel, 5-way binding posts per channel; accepts banana plugs, spade lugs or bare wire. (European models do not accept banana plugs).
DC Output Offset (shorted input): ±10 millivolts.
Output Signal: Stereo, unbalanced, two-channel.

Protection

XLS Series amplifiers provide extensive protection including output current limiting, DC protection, circuit breaker, and special thermal protection for the unit's transformers.

Construction

Ventilation: Flow-through ventilation from front to back.
Cooling: Internal heat sinks with forced-air cooling for rapid, uniform heat dissipation.
Air Volume Requirements (per minute per unit): 80.15 ft^3 (2.27 m^3).
Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5-inch (8.9-cm) height and 14-inch (35.6-cm) depth behind the mounting surface.

Weight

Net Weight,
XLS 202: 21.0 lbs. (9.5 kg);
XLS 402: 25.3 lbs. (11.5 kg);
XLS 602: 27.2 lbs. (12.3 kg).
Shipping Weight,
XLS 202: 26.0 lbs. (11.8 kg);
XLS 402: 30.3 lbs. (13.8 kg);
XLS 602: 32.2 lbs. (14.6 kg).

Other Applications: INSTALLED SOUND, PORTABLE PA

Regulatory Certifications:

The XLS Series of power amplifiers from Crown represents a new era in affordable, quality power amplification. The line consists of three models in a uniform, rugged 2U chassis, incorporating the best of tried-and-true design principles and innovative features.

MACRO
MACRO
MACRO
MACRO
MACRO-

MICROPHONES

Installed Sound .60

Portable PA/Touring .68

Recording and Broadcast .70

PCC®-160

Industry-Standard Stage-Floor Mic

Long recognized as an industry-standard stage-floor microphone, the half-supercardioid **PCC-160** is also great for altar tables – anywhere maximum gain and articulation are essential. PCC boundary technology guarantees a natural sound free of phase interference, with sensitivity increased by 6 dB. Available in two versions: black (**PCC-160**) or white (**PCC-160W**).

Element Type: Electret Condenser
Frequency Response: 50 Hz to 18 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

CM-30

Hanging Mic with Screw-Terminal Connector

Nearly invisible and with a built-in (removable) hanger for easy positioning, the **CM-30** is the choice for church choir and overhead stage miking. Smooth, wide-range response makes the CM-30 ideal for natural reinforcement or recording, while its ultratight supercardioid pattern provides impressive gain-before-feedback while rejecting unwanted noise and reverb. Electronics for the CM-30 attach straight to a rectangular electrical box. Accepts phantom power and includes 30-ft. (9.14 m) cable and electronics. Available in two versions: black (**CM-30**) or white (**CM-30W**) .

Element Type: Electret Condenser
Frequency Response: 40 Hz to 20 kHz
Polar Pattern: Supercardioid
Impedance: 150 ohms
Sensitivity: 10 mV/Pa

CM-31

Hanging Mic with XLR Connector

Offering the same performance as the CM-30, the **CM-31** includes a tubular electronics module with an XLR connector. This module, connected to your phantom power supply, also includes a low-cut switch. Output is balanced, low impedance and is protected against static and RF interference. Accepts phantom power and includes a 30-ft. cable. Available in two versions: black (**CM-31**) or white (**CM-31W**).

Element Type: Electret Condenser
Frequency Response: 40 Hz to 20 kHz
Polar Pattern: Supercardioid
Impedance: 150 ohms
Sensitivity: 10 mV/Pa

LM-201

The Rugged Lectern/Pulpit Microphone

LM-201

Slim, rugged and unobtrusive, the LM-201 is the best choice for pulpit and lectern applications. Its internal shock mount reduces lectern thumps. A ball-and-socket joint combined with a rugged mic arm provides quiet, long-term operation. The LM-201's supercardioid pattern rejects background noise and reverb while improving gain-before-feedback. Outboard electronics attach to supply power to the condenser element, with the option of power by normal phantom power or miniature AC plug-in adapter. Available in black (**LM-201P**) or brown (**LM-201B**).

Element Type: Electret Condenser
Frequency Response: 100 Hz to 15 kHz
Polar Pattern: Supercardioid
Impedance: 150 ohms
Sensitivity: 6 mV/Pa

LM-300A

LM-300A, LM-300AL, LM-301A

Gooseneck Microphones for Lectern/Pulpit

No matter the situation, the elegant LM-300A and LM-301A can meet the need. Both of these silent-operating goosenecks provide the same superb performance and supercardioid noise rejection. Explosive breath sounds are effectively reduced with the supplied foam 2-stage pop filter, while a low-cut switch further reduces breath pops.

LM-300AL

The **LM-300A** and **LM-300AL** (longer arm) plug directly into a female XLR panel or cable connector, while the **LM-301A** screws onto a standard 5/8-in.-27 thread, and has an external XLR connector.

To reduce lectern thumps, the **LM-SM** shock mount is supplied at no charge.

LM-301A

Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Supercardoid
Impedance: 150 ohms
Sensitivity: 6 mV/Pa

MIC TIPS

Stage-Floor Miking

Here is a typical mic placement for a stage floor: Space three PCC-160 microphones evenly near the edge of the stage. Place them as close as possible toward the actors. One or two PCCs might be enough for a small stage.

The more mics that are on, the muddier the sound, and the more feedback you will have. To aid clarity and reduce feedback, turn up as few mics as possible. For example, suppose an actor walks across the stage from left to right while talking. First turn up just the left mic, then turn it down while turning up the center mic. Then turn it down while turning up the right mic. Follow cues in the script so you know when to turn up various microphones.

For more details on miking drama and musicals, see the Crown Microphone Application Guide for Speech Sound Reinforcement at www.crownaudio.com. Under Expert Advice, Mics, click on Tech Info.

Details on miking houses of worship can be found in the Crown Microphone Application Guide for Houses of Worship in the same location.

Why Choose Crown for Stage and Pulpit?

- Excellent sound quality.
- Very good gain-before-feedback.
- Rugged, reliable and affordable.
- 3-year warranty.

MB SERIES

Mini-Boundary™ Microphone System

Featuring an incredibly small size, the MB Series of Mini-Boundary, half-supercardioid microphones from Crown offer a wide range of features and flexibility. The miniature, low-profile designs virtually disappear when installed, yet provide the same great sound as our highly-acclaimed PCC microphone series. Best of all, the MB Series provides substantial savings compared to traditional microphones.

Comprised of five microphones—three that work with our innovative MB interfaces and two that operate in a traditional stand-alone manner—the MB System lets you mix and match microphones as needed for multiple configurations.

All MB System microphones feature a surface-mounted half-supercardioid capsule for extended reach and clarity. Each microphone also features a built-in red LED that illuminates when the microphone is active.

MB-1

Installs in table-mounted insert

Just 1.3 in. wide! The low-profile **MB-1** features a ¼-in. stereo phone plug for quick insertion and removal from the supplied insert. The insert, featuring a black anodized aluminum finish, can be permanently installed, and includes a black dust cap for use when the microphone is removed. In combination with an MB Interface, the MB-1 can be programmed for multiple switching functions.

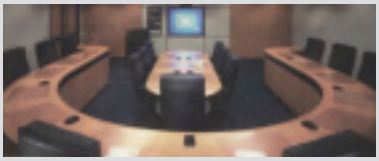
Element Type: Electret Condenser
Frequency Response: 50 Hz to 15 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

MB-2

Installs in table-mounted jack

The **MB-2** is a tiny, (less than 1 x 1.5-inch.) removable microphone that features a 1/4-inch stereo phone plug for quick insertion and removal from a standard contractor-supplied jack. Like the MB-1 and MB-4E, the **MB-2** features multiple switching modes when used with an MB Interface.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 15 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa



MB-3

Installs through table
Self-contained

A stand-alone unit with a built-in electronics package, the low-profile **MB-3** mounts easily into tabletops, walls or ceilings. It uses a standard male 3-pin XLR-type output and comes with a locking security ring.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 15 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

MB-4, MB-4E

MB-4: Cable installs through table; Self-contained

MB-4E: Cable installs through table; Requires MB-100 or MB-200 Interface

The **MB-4** is a mini rectangular microphone designed for stand-alone use and comes with a 15-ft. cable. All required electronics are contained within the male 3-pin XLR-type output. The cable may be positioned to exit either the bottom or rear of the microphone.

The **MB-4E** is a pigtail version of the MB-4. Its cable fits through a small hole in the mounting surface and is intended for use with the MB Interfaces.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 15 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

MB-100, MB-200 Interfaces

MB-100: For use with MB-1, MB-2, MB-4E

MB-200: MB-100 plus Remote Switch Sensing Via Optical Coupler

Designed to accommodate up to four microphones, the **MB-100** Interface is a low-profile electronics package easily mounted beneath a table-top. It works with MB-1, MB-2, and MB-4E microphones and provides four inputs, four outputs and four remote switch inputs. Each switch input can be programmed for either push-on/off, momentary on, or momentary off operation. In the off position, the MB interfaces provide 70 dB attenuation at the microphone output, ensuring absolute quiet even when multiple microphones are in use. With the same features as the MB-100, the **MB-200** also provides four external switch closures via optical couplers. Both interfaces require external 18-48 volt phantom power.

MIC TIPS

Conference Miking with MB and PCC Microphones

An effective way to mike a conference table is to install one microphone between every two people at arm's length away.

Run all the mics into an automatic mic mixer. This device turns off mics that are not in use, which results in a much clearer sound.

Some participants might prefer to be miked with lectern microphones, such as the Crown LM-201, LM-300A, LM-300AL, or LM-301A. These microphones can be found in the Section *Installed Sound - Stage and Pulpit*.

For more details on conference miking, see the *Crown Microphone Application Guide for Teleconferencing and Distance Learning* at www.crownaudio.com.
Under Expert Advice, Mics, click on Tech Info.

Why Choose Crown for Conferences?

- Clear, natural sound quality.
- Small size.
- Reliable and affordable.
- 3-year warranty.

PCC-170

Table-Mounted Half-Supercardioid

The PCC-170's surface-mount, half-supercardioid design is equally adept in the boardroom, at the lectern, or for teleconferencing. Provides clear, natural sound free of phase interference from table sound reflections. Available in two versions: black (**PCC-170**) or white (**PCC-170W**).

Element Type: Electret Condenser
Frequency Response: 50 Hz to 20 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

PCC-170SW, PCC-170SWO

PCC-170 with Programmable On-Off Switch

The **PCC-170SW** gives you the unique ability to program it for three modes of operation via a silent-operating membrane switch that can be configured for touch on/off, momentary on, or momentary off. A base-mounted, 1/4-inch stereo phone plug version is also available as the **PCC-170SWSPP.**

The **PCC-170SWO** includes all the features of the PCC-170SW, and adds remote sensing via a patented opto-coupled MOS switching circuit. A pair of extra leads in the mic cable allows remote sensing of the switch closure.

PCC-130, PCC-130SW

Small Table-Mounted Half-Cardioid

The **PCC-130** features exceptional performance in a package only about half the size of the PCC-170. When the situation simply demands that a mic be heard but not seen, the PCC-130 gives you an obvious choice. Its half-cardioid pattern reduces background noise, reverb, and feedback. The PCC-130 is also available in white as the **PCC-130W**. A base-mounted, 1/4-inch stereo phone plug version is also available as the **PCC-130SPP**, and in white as the **PCC-130WSPP**.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 20 kHz
Polar Pattern: Half-cardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

Similar in size and performance to the PCC-130, the **PCC-130SW** has a silent-operating membrane switch that can be programmed for touch on/off, momentary on, or momentary off. It has a half-supercardioid polar pattern. A base-mounted, 1/4-inch stereo phone plug version is also available as the **PCC-130SWSPP.**

MIC TIPS

Conference Miking with PZMs

If your conference room is acoustically dead, you might be able to mike the conference successfully with just a few Pressure Zone Microphones.

Unlike PCC® and MB microphones which are unidirectional, PZMs are omnidirectional. Each PZM picks up sound from all around with its hemispherical polar pattern.

You can use PZMs when the room acoustics are dead, and you are willing to pick up several people with one microphone. Since you will need only a few PZMs to do the job, the cost of installation will be lower.

If the conference table is no more than 4 feet square, use a single PZM® of your choice in the center of the table. If the table is long, use two or three PZMs in the middle of every 4 to 6 people.

Use PCCs or MBs when the room acoustics are live, when you want individual pickup of the participants, or when you want to switch the mics on and off.

Ceiling-mounted microphones work well for recording but do not provide enough gain-before-feedback when used for sound reinforcement. If you need sound reinforcement of the meeting, Crown recommends table-mounted PZMs, PCCs or MBs.

PZM®-20R

Pressure Zone Microphone® for Permanent Installation

Perfect for permanent flush-mounting in conference tables, lecterns, pulpits, walls, you name it. A hemispherical pickup pattern, rising high-frequency response and low-frequency roll-off makes the **PZM-20R** a great choice for clear speech pickup. It also mounts in shallow cavities or a standard electrical wall box and can be powered directly from phantom power via screw terminals. White version (**PZM-20RW**) also available.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 240 ohms
Sensitivity: 7 mV/Pa

PZM-185

Budget PZM with XLR Connector

Ideal for applications such as conferences, group discussions, interviews, broadcast, home video production, lectures, and recordings. The **PZM-185** can be placed on a large surface such as a table, floor, wall, or lectern. Powered by AAA battery or phantom power.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 16 kHz
Polar Pattern: Hemispherical
Impedance: 150 ohms
Sensitivity: 0.8 mV/Pa (1.5 volt battery), 3.2 mV/Pa (phantom power)

Sound Grabber II

Budget PZM with High-Z Unbalanced Output

Ideal for applications such as conferences, group discussions, interviews, home video production, lectures, and recordings. The **Sound Grabber II** can be placed on a large surface such as a table, floor, wall, or lectern. Powered by AAA battery. Comes with mini phone plug and plug adapters.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 16 kHz
Polar Pattern: Hemispherical
Impedance: 1600 ohms, unbalanced
Sensitivity: 20 mV/Pa (–54 dBV/Pa)

PZM-10, PZM-10LL

Ceiling- or Wall-Mount PZMs

The **PZM-10** is a low-profile omni Pressure Zone Microphone featuring a cylindrical design for ceiling, wall or tabletop installations. Intelligibility is excellent, with low frequencies below the voice range rolled off to reduce the pickup of HVAC rumble. Has XLR-type output connector. The **PZM-10LL** has a line-level output on a pigtail cable and requires 12 to 24V DC.

Element Type: Electret Condenser
Frequency Response:
PZM-10: 80 Hz to 20 kHz
PZM-10LL: 100 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: PZM-10: 240 ohms
PZM-10LL: 75 ohms
Sensitivity: PZM-10: 2.5 mV/Pa
PZM-10LL: 1.4V/Pa

PZM-11, PZM-11LL

Ceiling- or Wall-Mount PZMs

Mounted on a standard wall plate, the **PZM-11** resembles a light switch. Intelligibility is excellent, with low frequencies below the voice range rolled off to reduce the pickup of HVAC rumble. Electronics on the rear of the plate offer screw terminals. The **PZM-11** uses 12-48 volts phantom power, while the **PZM-11LL** features line-level output and is powerable by 12-24V DC, 24V AC, or phantom power.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 20kHz
Polar Pattern: Hemispherical
Impedance: PZM-11: 225 ohms
PZM-11LL: 75 ohms
Sensitivity: PZM-11: 5 mV/Pa
PZM-11LL: 1.4V/Pa

Why Choose Crown for Conferences?

- Clear, natural sound quality.
- Small size.
- Reliable and affordable.
- 3-year warranty.

PZM-10, PZM-10LL

Security and Surveillance, XLR Connector / Pigtail

The **PZM-10** is a low-profile omni Pressure Zone Microphone featuring a cylindrical design for ceiling, wall or tabletop installations. Intelligibility is excellent, with low frequencies below the voice range rolled off to reduce the pickup of HVAC rumble. Has XLR type output connector. The **PZM-10LL** has a line-level output on a pigtail cable and requires 12 to 14V DC.

PZM-10
Element Type: Electret Condenser
Frequency Response: 80 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 240 ohms
Sensitivity: 2.5 mV/Pa

PZM-10LL
Element Type: Electret Condenser
Frequency Response: 100 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 75 ohms
Sensitivity: 1.4 V/Pa

PZM-11, PZM-11LL

Security and Surveillance, Screw Terminal Connector

Mounted on a standard wall plate, the **PZM-11** resembles a light switch. Intelligibility is excellent, with low frequencies below the voice range rolled off to reduce pickup of HVAC rumble. Electronics on the rear of the plate offer screw terminals. The **PZM-11** uses 12-48 volts phantom power, while the **PZM-11LL** features line-level output and is powered by 24V AC, 12-24V DC, or phantom power.

PZM-11
Element Type: Electret Condenser
Frequency Response: 80 Hz to 20kHz
Polar Pattern: Hemispherical
Impedance: 225 ohms
Sensitivity: 5 mV/Pa

PZM-11LL
Element Type: Electret Condenser
Frequency Response: 80 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 75 ohms
Sensitivity: 1.4 V/Pa

PZM-11LLWR

Water-Resistant Security/Surveillance Mic

Similar to the PZM-11LL, the **PZM-11LLWR** is a weather-resistant model designed for outdoor use. A plastic membrane inside the microphone protects the mic capsule from water damage. The mic mounts in a standard electrical outlet box. Applications include fast-food restaurants, outdoor intercoms, toll booths, bridges, theme park security and home automation. Requires 12-24V AC or DC. Phantom powering by special order.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 10 kHz
Polar Pattern: Hemispherical
Impedance: 75 ohms
Sensitivity: 1.4 V/Pa

PCC-160

Half-Supercardioid Ceiling Microphone

The **PCC-160** is ideal for use underneath overhangs, or on the ceiling near a wall. Half-supercardioid polar pattern rejects room acoustics for a clearer sound. White version (**PCC-160W**) also available. Phantom powered.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 18 kHz
Polar Pattern: Half-Supercardioid
Impedance: 150 ohms
Sensitivity: 22 mV/Pa

CM-30

Hanging Microphone for Security/Surveillance

Nearly invisible and with a built-in (removable) hanger for easy positioning, the **CM-30** is an ideal hanging microphone. Its ultratight supercardioid pattern rejects unwanted noise and reverb. Electronics for the CM-30 attach straight to a rectangular electrical box. Accepts phantom power and includes 30-ft. (9.14 m) cable and electronics. Available in two versions: black (**CM-30**) or white (**CM-31W**).

Element Type: Electret Condenser
Frequency Response: 40 Hz to 20 kHz
Polar Pattern: Supercardioid
Impedance: 150 ohms
Sensitivity: 10 mV/Pa

MIC TIPS

Placement of Ceiling Mics

One way to cover a large room is with PZMs on the ceiling.

How far apart should the mics be to get uniform coverage? Use the 2-to-1 rule. The spacing between mics should be two times the distance from mouth to ceiling. For example, if the ceiling is 5 feet above the talkers' mouths, the mics should be 10 feet apart. Then the mics will pick up everyone about equally.

In general, use the smallest number of mics that will do the job.

If several mics are on at the same time, the recorded sound might be reverberant or muddy. It helps to run all the mics into a gated mixer (automatic mixer), which turns on only one mic at a time - the one nearest the person speaking. This keeps the sound clear.

If the ceiling is very high, mount the PZM-11 or PZM-11LL on support posts and/or walls, about 10 feet off the floor (out of reach).

Half-supercardioid mics like the PCC-160 should be placed on the ceiling a few feet from the wall, looking into the room.

For more details, see the Crown Microphone Application Guide for Security and Surveillance at www.crownaudio.com. Under Expert Advice, Mics, click on Tech Info.

Why Choose Crown Mics for Security/Surveillance?

- They don't look like microphones.
- They provide exceptional clarity of speech.
- They reduce rumble from air conditioning and truck

CM-200A, CM-200ASW

Smooth Vocals, Excellent Instrumentals

The **CM-200A** cardioid delivers fine studio quality sound in a rugged package that withstands the toughest field conditions. Its smooth, articulate performance combined with a wide frequency range make it an excellent choice for all-around critical uses, either vocals or instruments. The **CM-200ASW** adds a built-in magnetic reed switch that turns the mic on and off.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Cardioid
Impedance: 150 ohms
Sensitivity: 3 mV/Pa

CM-310A, CM-310ASW

Differoid Noise-Canelling Microphone

Featuring Crown's patented Differoid® technology, the **CM-310A** provides quality sound and exceptional isolation from background noise. The microphone is ideal for live performance with high stage volume, sports announcing and for eliminating strong ambient background noise. The **CM-310ASW** features a built-in magnetic reed switch that turns the mic on and off. Frequency response is internally adjustable for your choice of natural sound or bright, articulate sound. Requires 12-48 volt phantom power.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Cardioid
Impedance: 200 ohms
Sensitivity: 1.7 mV/Pa

CM-311A, CM-311AE, CM-311AHS

Headworn Differoids

The **CM-311A** offers Differoid performance in a comfortable headworn package. It is designed to meet the most demanding touring sound applications, with its electret condenser capsule providing full, clear and distortion-free sound. Gain-before-feedback and isolation are exceptional. Lightweight, rugged and comfortable, the headband and mic boom are adjustable to any vocalist. **CM-311A** includes a battery/phantom powered belt pack. **CM-311AE** connects directly to most wireless transmitters. The **CM-311AHS** mounts on a Sony MDR-V6 or MDR-7506 headphone.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 17 kHz
Polar Pattern: Cardioid
Impedance: 75 ohms
Sensitivity: 4 mV/Pa

SASS-P MKII, SASS-HC

Natural Stereo Imaging

Low frequencies

High frequencies

The **SASS®-P MK II** is the latest version of our patented, stereo condenser microphone using PZM technology. A mono-compatible, near-coincident array design makes it perfect for professional recording, broadcast and sampling.

The SASS-P MK II features carefully controlled polar patterns and human-head-sized spacing between its capsules that create well-focused, natural stereo imaging without a "hole in the middle." Reproduction is precise and realistic, with the SASS-P MK II accurately conveying ambient environment for location recording and audience reaction.

Separate left and right outputs are low impedance balanced, allowing long cable runs without hum or high-frequency loss. A low-frequency cut switch attenuates frequencies below 100 Hz by 12 dB-per-octave, reducing wind noise and low-end rumble. The SASS-P MK II can be powered either by two internal 9-volt batteries or by phantom power.

Perfect for permanent installations such as high school and college music programs, the **SASS-HC** is the same as the SASS-P MK II, but without the carrying case or accessories except windscreen. Case and accessories may be purchased separately, if desired.

Element Type: Electret Condenser
Frequency Response: 20 Hz to 18 kHz
Polar Pattern: Omnidirectional (low frequencies), Unidirectional (high frequencies)
Impedance: 50 ohms
Sensitivity: 6 mV/Pa

CM-312, CM-312AE, CM-312AHS

Headworn Flexibility

The **CM-312A** condenser mic provides hypercardioid directional characteristics with the same comfort and fit found with the headworn CM-311A. The CM-312A is ideal for live sound situations where a little less discrimination against high stage levels is required. It's also an excellent choice for aerobics and broadcast applications. The **CM-312A** includes a battery/phantom powered belt pack. **CM-312AE** connects directly to most wireless transmitters. The **CM-312AHS** mounts on a Sony MDR-V6 or MDR-7506 headphone.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 17 kHz
Polar Pattern: Hypercardioid
Impedance: 75 ohms
Sensitivity: 3.8 mV/Pa

GLM-100, GLM-100E

Miniature Omni

The GLM-100's miniature size and gigantic performance make it a natural for clip-on instrument miking. An omnidirectional electret-condenser, it features a smooth, wide-range frequency response for truly professional sound quality. The **GLM-100** includes tough miniature electronics in an XLR connector. The **GLM-100E** features the same mic design, but comes without a connector for use with a wireless microphone transmitter of your choice. Both models feature a rugged, resilient housing to withstand the most rigorous conditions.

Element Type: Electret Condenser
Frequency Response: 20 Hz to 20 kHz
Polar Pattern: Omnidirectional
Impedance: 240 ohms
Sensitivity: 3.2 mV/Pa

GLM-200

Miniature Hypercardioid

Also for instrument applications, the **GLM-200** miniature hypercardioid offers the same size advantages as the GLM-100 but provides extra gain-before-feedback for critical sound reinforcement applications. Another feature is uniform off-axis rejection. Ideal for musical instrument reinforcement or recording. Extra reliability is provided by flex/strain relief systems at both the microphone and cable connector.

Element Type: Electret Condenser
Frequency Response: 60 Hz to 20 kHz
Polar Pattern: Hypercardioid
Impedance: 150 ohms
Sensitivity: 6 mV/Pa

CM-700, CM-700MP

Drums and Acoustic Instruments

The **CM-700** is a cardioid condenser microphone for use in professional recording and sound reinforcement. It reproduces music with an accurate, natural sound. Handling up to 151 dB SPL before overload, this mic is an excellent choice for miking overhead drums or acoustic instruments. The CM-700 also features a 3-position roll-off switch. A stereo matched pair of CM-700s is available as the **CM-700MP**.

Element Type: Electret Condenser
Frequency Response: 30 Hz to 20 kHz
Polar Pattern: Cardioid
Impedance: 190 ohms
Sensitivity: 2.5 mV/Pa

Some Crown Microphone Users

Britney Spears, 'N Sync, Ozz Fest, Cinderella, Charlie Daniels Band, Janet Jackson, Garth Brooks, Firehouse, Art Garfunkel, Kathryn Williams, Night Ranger, Cary Pierce, Elliot Murphy, and many more....

Live Sound: Microphone Choice and Placement

Several suggestions for mic techniques used in live sound can be found in the Crown Microphone Application Guide for Live Sound at http://www.crownaudio.com. Under Expert Advice, Mics, click on Tech Info.

Why Choose Crown Mics for Portable PA / Live Sound?

- Excellent sound quality and very good gain-before-feedback.
- Exceptional gain-before-feedback and isolation in the CM-311A headworn Differoid mic and CM-310A handheld Differoid mic.
- Rugged, reliable and affordable

CM-200A

Smooth Vocals, Excellent Instrumentals

The **CM-200A** cardioid delivers fine studio quality sound in a rugged package that withstands the toughest field conditions. Its smooth, articulate performance combined with a wide frequency range make it an excellent choice for all-around critical uses. The CM-200A works especially well for close-miked lead vocals, harmony vocals and scratch vocals.

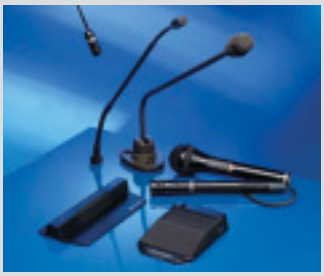
Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Cardioid
Impedance: 150 ohms
Sensitivity: 3 mV/Pa

CM-200ASW

CM-200A with On-Off Switch

The **CM-200ASW** offers the same performance as the CM-200A, and also includes a magnetic reed switch that turns the mic on and off.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Cardioid
Impedance: 150 ohms
Sensitivity: 3 mV/Pa



CM-700, CM-700MP

Professional Recording

The **CM-700** is a cardioid condenser microphone for use in professional recording and sound reinforcement. It reproduces music with an accurate, natural sound. Handling up to 151 dB SPL before overload, this mic is an excellent choice for miking overhead drums or acoustic instruments. The CM-700 also features a 3-position roll-off switch. A stereo matched pair of CM-700s is available as the **CM-700MP**.

Element Type: Electret Condenser
Frequency Response: 30 Hz to 20 kHz
Polar Pattern: Cardioid
Impedance: 190 ohms
Sensitivity: 2.5 mV/Pa

PZM-30D

Rugged Pressure Zone Microphone

Clear, natural sound without phase interference from surface sound reflections. Excellent "reach." Uniform polar response. The **PZM-30D** offers all of these PZM advantages. A switchable dual-frequency response provides a "rising" position that adds brilliance and articulation, while the "flat" position maintains a smooth, flat and natural high-frequency response. Miniaturized electronics allow direct connection to a mixer with phantom power. The mic accepts a rugged detachable cable.

Element Type: Electret Condenser
Frequency Response: 20 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 240 ohms
Sensitivity: 7 mV/Pa

PZM-6D

Inconspicuous, Lightweight PZM

A smaller plate makes the **PZM-6D** even more inconspicuous than the PZM-30D, while performance remains the same. Mounts easily on panels for overhead stereo miking, or on the underside of a piano lid. The microphone offers switchable "rising" response for bright sound or "flat" response for natural sound. Miniaturized electronics in the XLR-type connector housing are attached to the mic via a 12-ft. mini cable.

Element Type: Electret Condenser
Frequency Response: 20 Hz to 20 kHz
Polar Pattern: Hemispherical
Impedance: 240 ohms
Sensitivity: 7 mV/Pa

MIC TIPS

Studio Recording: Microphone Choice and Placement

Several suggestions for mic techniques used in studio recording can be found in the Crown Microphone Application Guide for Studio Recording at www.crownaudio.com. Under Expert Advice, Mics, click on Tech Info.

Here is an example of a suggested mic technique:

Grand Piano

• Raise the lid. Tape a GLM-100, PZM-6D or PZM-30D to the underside of the lid in the middle. For stereo, use two over the bass and treble strings. If you need more isolation, close the lid. Cut a few dB at 300 Hz to reduce boominess.

• Raise or remove the lid. Place two CM-700s, CM-150s, or GLM-100s 8 to 12 inches over the bass and treble strings, 8 inches horizontally from the hammers. If desired, boost a few dB at 10 kHz for clarity.

• Remove the lid. Place two GLM-100s or CM150s about 12 inches apart, angled 90 degrees apart, 18 inches over the soundboard and 10 inches horizontally from the hammers. If desired, boost a few dB at 10 kHz for clarity.

Why Choose Crown Mics for Recording and Broadcast?

- Excellent sound quality.
- Rugged, reliable and affordable.
- 3-year warranty.
- Crown was the first to market the Pressure Zone Microphone and remains the industry leader.

CM-311AHS

Differoid Noise-Cancelling Microphone for Broadcast

This noise-cancelling microphone mounts on a Sony MDR-V6 or MDR-7506 headphone. Its condenser capsule provides full, clear, distortion-free sound and exceptional isolation from background noise. The **CM-311AHS** is ideal for sports announcing and traffic helicopters. Lightweight, rugged and comfortable, the headband and mic boom are adjustable to any user. The microphone includes a battery/phantom powered belt pack with a programmable on-off switch.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 17 kHz
Polar Pattern: Cardioid
Impedance: 75 ohms
Sensitivity: 4 mV/Pa

CM-312AHS

Hypercardioid Headworn Microphone for Broadcast

The **CM-312AHS** hypercardioid microphone offers the same comfort and fit found with the headworn CM-311AHS. It mounts on a Sony MDR-V6 or MDR-7506 headphone. The CM-312AHS is ideal for studio and remote situations where a little less discrimination against background noise is required. It includes a battery/phantom powered belt pack with a programmable on-off switch.

Element Type: Electret Condenser
Frequency Response: 50 Hz to 17 kHz
Polar Pattern: Hypercardioid
Impedance: 75 ohms
Sensitivity: 3.8 mV/Pa

CM-310ASW

Differoid Noise-Cancelling Microphone

Featuring Crown's patented Differoid technology, the **CM-310ASW** provides quality sound and exceptional isolation from background noise. The microphone is ideal for sports announcing and for eliminating strong ambient background noise. Its built-in magnetic reed switch turns the mic on and off. Frequency response is internally adjustable for your choice of natural sound or bright, articulate sound.

Element Type: Electret Condenser
Frequency Response: 80 Hz to 15 kHz
Polar Pattern: Cardioid
Impedance: 200 ohms
Sensitivity: 1.7 mV/Pa

SASS-P MKII, SASS-HC

Natural Stereo Imaging

Low frequencies

High frequencies

The **SASS-P MK II** is the latest version of our patented, stereo condenser microphone using PZM technology. A mono-compatible, near-coincident array design makes it perfect for professional recording, broadcast and sampling.

The SASS-P MK II features carefully controlled polar patterns and human-head-sized spacing between its capsules that create well-focused natural stereo imaging without a "hole in the middle." Reproduction is precise and realistic, and accurately conveys the ambient environment for location recording, film sound or synched audio ambience.

Separate left and right outputs are low impedance-balanced, allowing long cable runs without hum or high-frequency loss. A low-frequency cut switch attenuates frequencies below 100 Hz by 12 dB-per-octave, reducing wind noise and low-end rumble. The SASS-P MK II can be powered either by two internal 9 volt batteries or by phantom power.

Perfect for permanent installations such as high school and college music programs, the **SASS-HC** is the same as the SASS-P MK II, but without the carrying case or accessories except windscreen. Case and accessories may be purchased separately, if desired.

Element Type: Electret Condenser
Frequency Response: 20 Hz to 18 kHz
Polar Pattern: Omnidirectional (low frequencies), Unidirectional (high frequencies)
Impedance: 150 ohms
Sensitivity: 6 mV/Pa

MIC TIPS

Field Recording with the SASS

Electronic News Gathering (E.N.G.)

Often you can record an announcer and ambience with the SASS alone, without an extra handheld or lavalier mic on the announcer. If the ambient noise level is too high, use a mixer to blend a close-up microphone (panned to center) with the SASS.

The SASS will give a slight but not noticeable boost to the appropriate side if the talent moves away from the frame center. If the SASS is camera mounted, use the windscreen to subdue wind noise caused by camera movement.

Because of its light weight, the SASS can be mounted on a fishpole, floor stand, boom stand, or tripod, in addition to the handgrip.

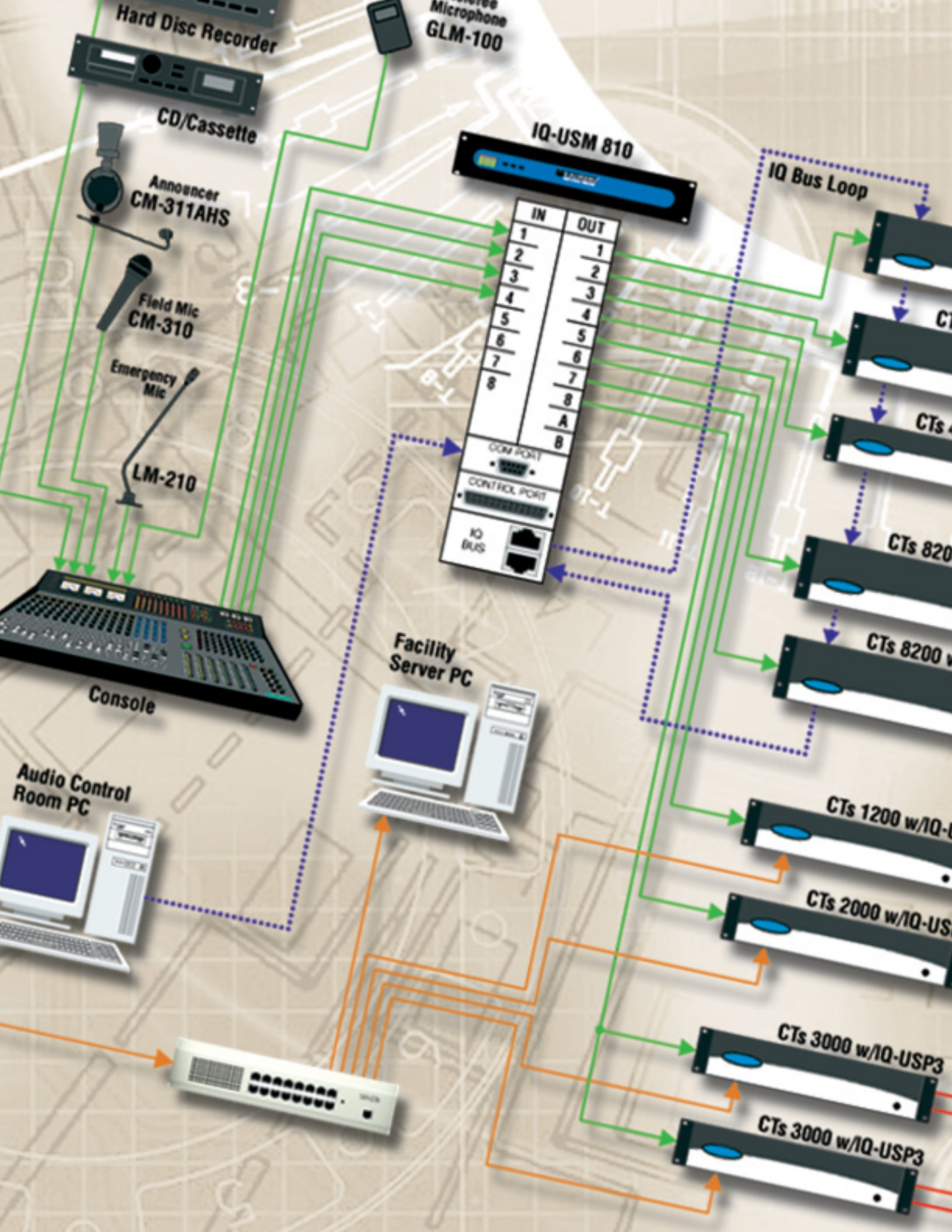
Large musical ensembles (orchestra, band, choir, pipe organ)

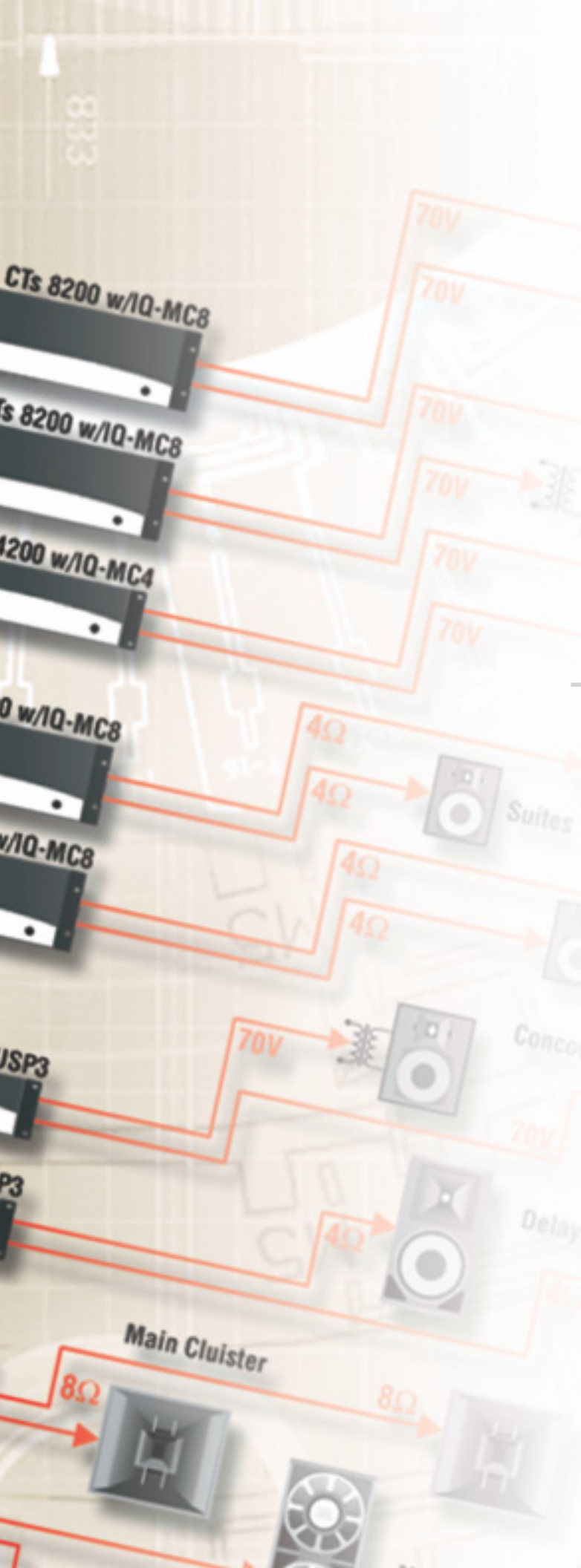
Place the SASS 4 to 15 feet from the front row of musicians. Angle it down so that it will be aimed at the performers when raised, and raise it about 15 feet high on a microphone stand. Closer placement to the performers will sound more edgy, detailed, and dry: farther placement will sound more distant, blended and reverberant. Try to find a spot where you hear a pleasing balance between the direct sound from the ensemble and the hall ambience.

For more information on SASS techniques, go to www.crownaudio.com.
Under Expert Advice, Mics, click on Tech Info.

Why Choose Crown Mics for Recording and Broadcast?

- Excellent sound quality.
- Rugged, reliable and affordable.
- 3-year warranty.
- Outstanding rejection of background noise in the CM-311AHS and CM-310AHS.


Hard Disc Recorder
Microphone
GLM-100
CD/Cassette
IQ-USM 810
IQ Bus Loop
Announcer
CM-311AHS
IN
OUT
Field Mic
CM-310
Emergency Mic
LM-210
COM PORT
CONTROL PORT
IQ BUS
Console
Facility Server PC
Audio Control Room PC
CTs 1200 w/IQ-
CTs 2000 w/IQ-US
CTs 3000 w/IQ-USP3
CTs 3000 w/IQ-USP3



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IQ Network

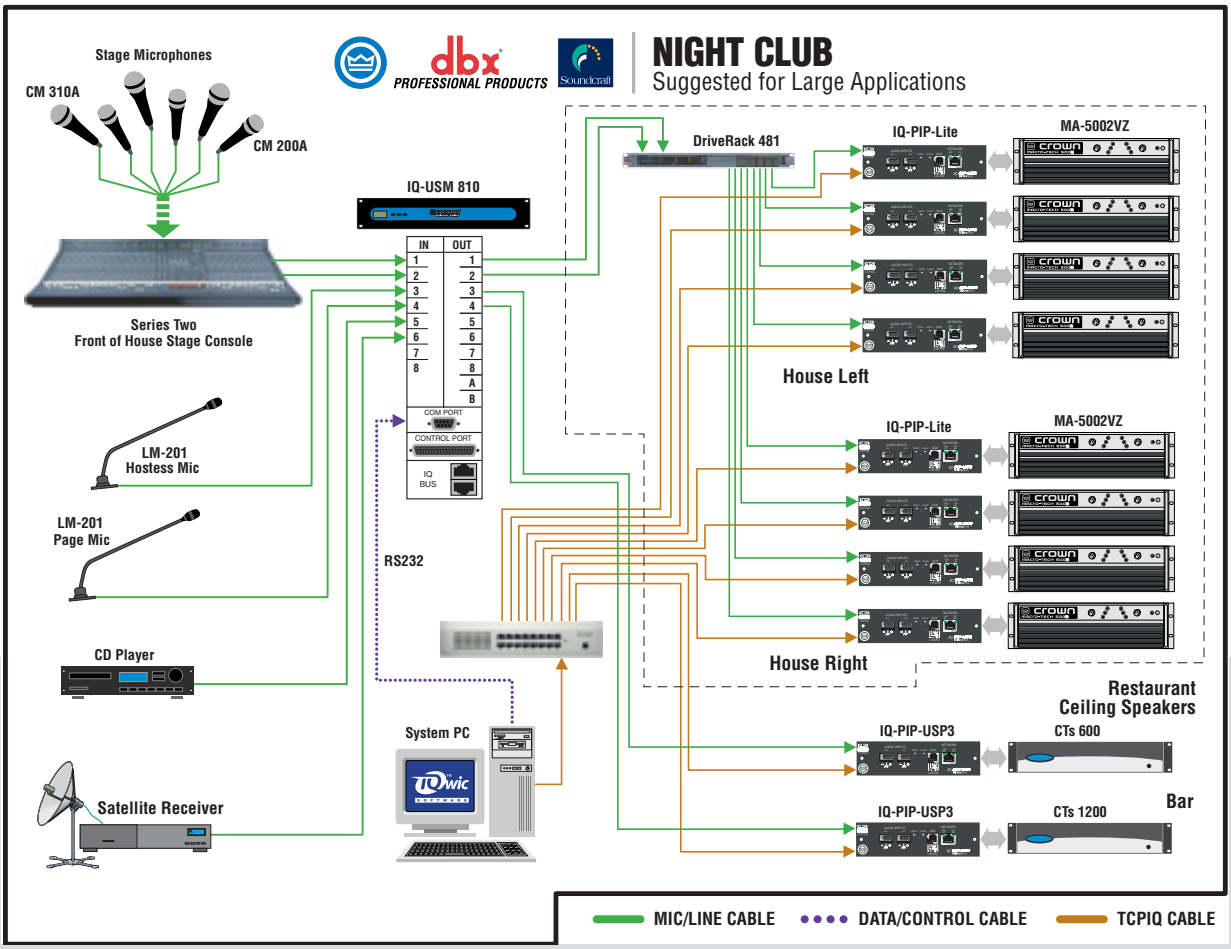
TCP/IQ Protocol

Complete Digital Audio Solution

The Crown IQ Network provides digital audio distribution, monitoring and control for a wide range of audio systems over a standard 100MB Ethernet network via Crown's TCP/IQ™ protocol.* Control and monitoring of the entire audio system is performed using IQ components and versatile IQwic™ or IQ for Windows® software. From houses of worship to stadiums to theme parks, IQ is the system of choice for high-quality digital audio.

TCP/IQ

The IQ Network uses fast,100-MB Ethernet and Crown's new TCP/IQ protocol. The result is a network system that is low in cost and easy to set up. By making use of standard, off-the-shelf Ethernet network hardware, Crown's IQ Network provides low system infrastructure costs and unparalleled flexibility.



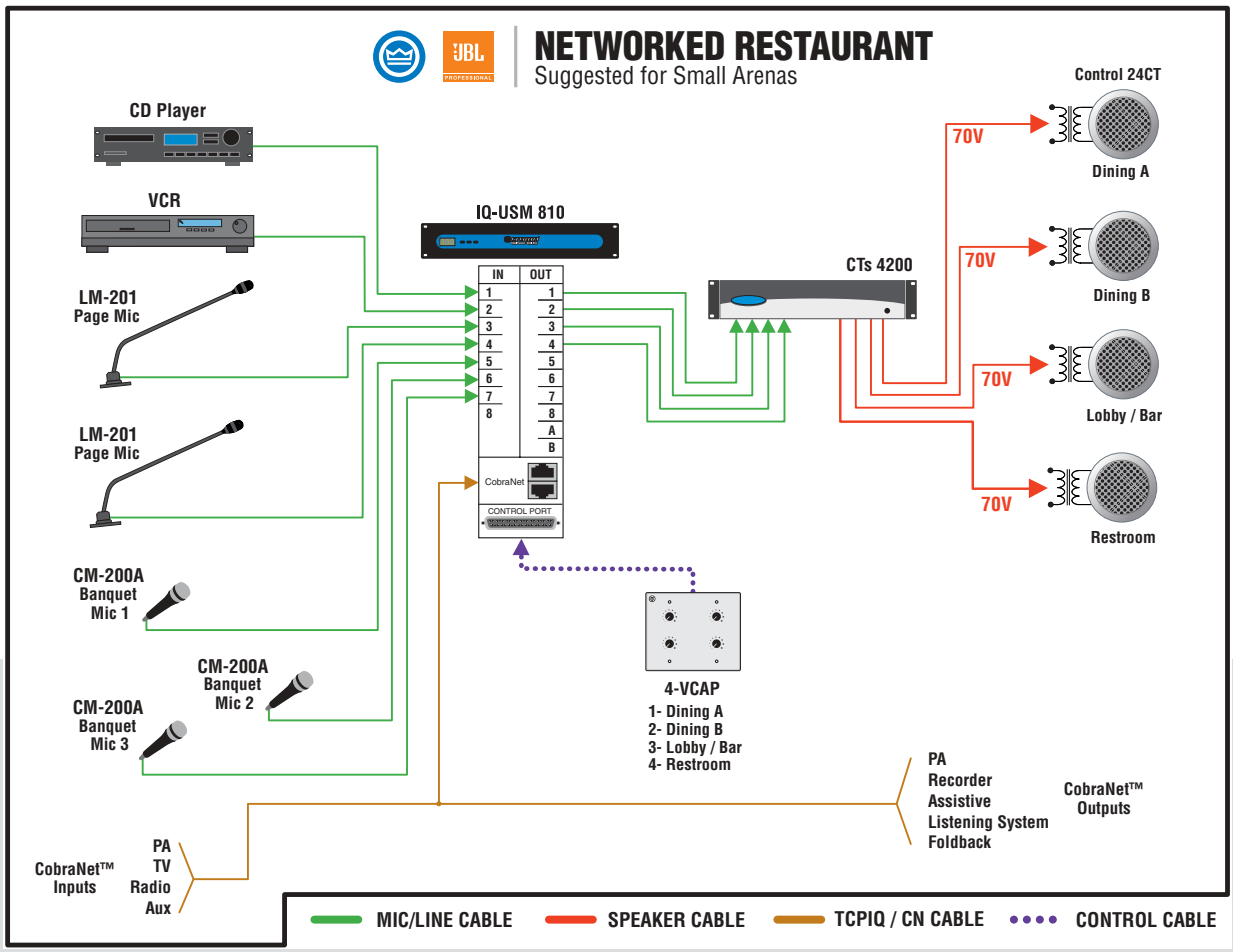
Advantages

- Provides access to all servers, amplifiers and speakers on the network for quick, system-wide diagnostics.
- Automated error reporting allows technicians and users to learn about potential system errors before they happen.
- Alerts technicians immediately of any problems, providing specific data on where to locate the problem.
- Lower infrastructure costs —the entire audio system can be controlled and monitored on the same facility network being used by existing network services, such as concessions management, box office ticketing, HVAC, etc.
- Simple to design —components are pre-chosen, easy to install, and easy to operate.
- Full audio system control is available via custom control screens designed to match floor plan and functional flow, and the network allows for multiple computers to access the system in multiple locations.
- The system also provides security, notifying management if any speaker or amplifier is disconnected.

*Digital audio transport provided via CobraNet™.

Networking IQ

With an IQ Network, systems can be controlled or monitored from multiple computers networked together. Using virtually any kind of network—from low-cost, off-the-shelf components such as Ethernet to wireless networks—this innovation provides you with another reliable and affordable control option. Whether set up as an independent network or integrated with an existing one, an IQ Network gives you greater flexibility than ever before. Instead of being confined to just one host computer, you can have quick access no matter where you're located. In fact, with a laptop and wireless network, you could roam any large installation and still have full system monitoring and control. The user interface and operation uses well-established Windows® Client/Server procedures, which makes it incredibly easy to learn and use. Networked users can easily track other users, as well as work together in real time, if desired. By connecting an inexpensive modem directly to your IQ Network, you can control the system from any modem-equipped computer.



IQ Network Software

IQwic, IQ for Windows

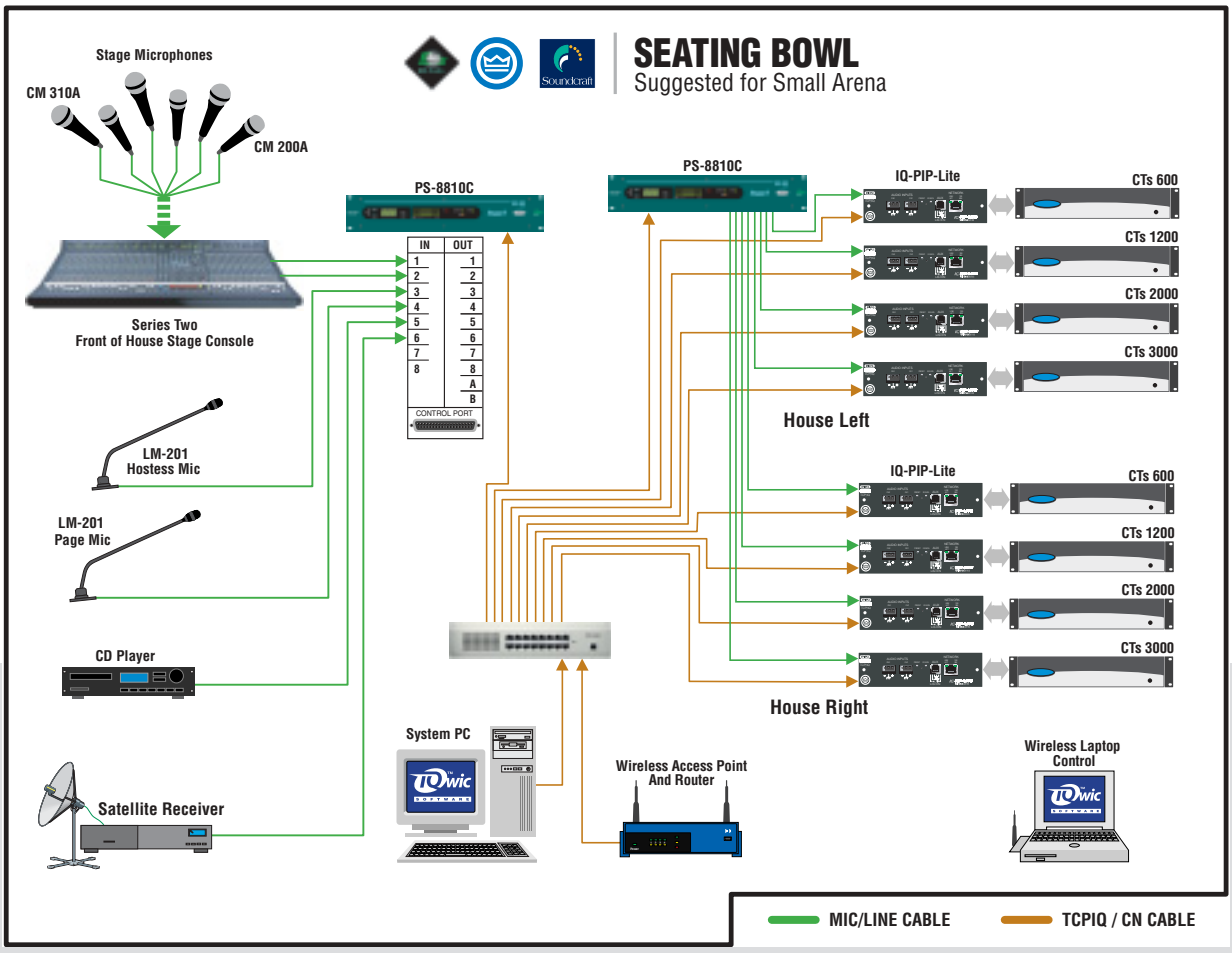
The Ease of Windows, the Power of Crown

Crown's IQ Network is controlled by powerful yet easy-to-use IQ software. The intuitive interface provided in both IQwic™ and IQ for Windows software suites makes the system so easy to operate that even a novice can effectively use an IQ Network. Beneath this easy-to-use interface, custom control features provide the in-depth control required by experienced audio professionals. Comprehensive on-line help for every operation and IQ component is just a simple click away (if it's ever needed).

Both IQwic and IQ for Windows feature multiple levels of password security, which minimizes unauthorized use and makes security procedures more manageable than ever. Access can be easily defined for individual users, which can range from monitoring of the system only, all the way to complete system configuration.

IQwic, short for IQ Windows Intelligent Control, offers all of the features and functionality of the most recent IQ for Windows software—including its "drag and drop" methodology—then adds to it a new "system view," which not only shows the products and their performance, but product interconnections as well, including easy CobraNet audio signal routing between products. IQwic allows you to control and monitor components that use TCP/IQ (Ethernet) as well as the older IQ Bus current loop for control. The included IQ Gateway program consolidates the two different technology platforms so they appear within IQwic as one system—completely seamless to the installer or operator.

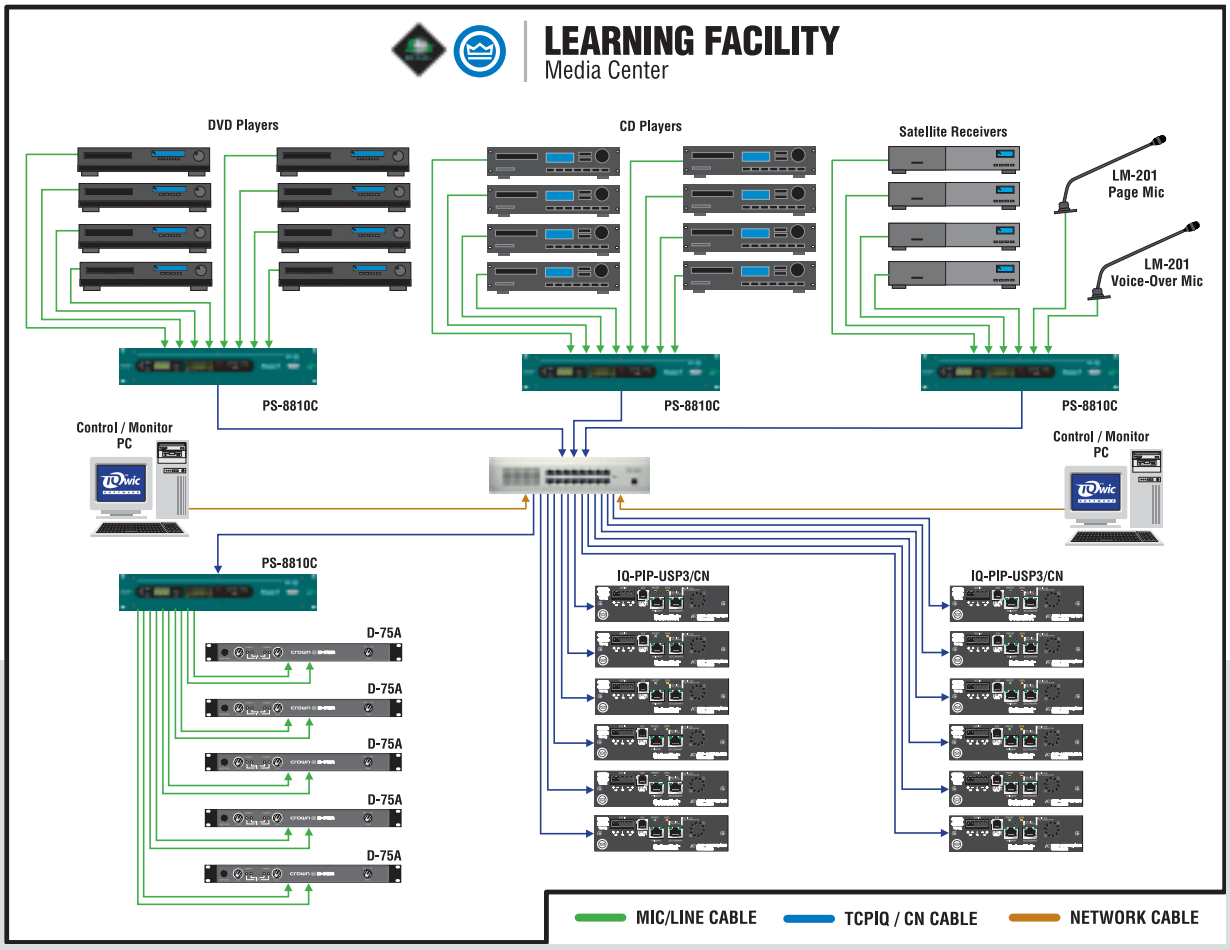
The **IQ for Windows** software suite allows you to control and monitor components that use the IQ Bus (current loop) for control. It also includes IQNET Server, which allows you to control an IQ Bus system from multiple computers over a TCP/IP network.



IQ Network Hardware Components

Crown **PIP** (Programmable Input Processor) input modules allow compatible amplifiers to be controlled and monitored via IQ. Crown offers several different PIP modules with a range of features including control and monitoring, real-time load supervision, digital signal processing including filters and delay, CobraNet networked audio transport and other advanced features.

The success of the IQ Network around the world has led other manufacturers to develop products that are IQ-compatible, providing you with additional capabilities.



IQ-USM 810

Processor/Mixer/Router—All In One

The Crown IQ-USM 810 is an 8x10 mixer/processor with unique dual input processing paths. As an IQ component, it can be controlled by an IQ Network, and with its distributed intelligence capability, can continue to operate even when an IQ Network is not connected. The IQ-USM 810 can also act as a system interface to other IQ components.

It features high-quality 24-bit A/D and D/A converters along with 240 MIPS of full 32-bit floating point DSP for optimum dynamic range.

Features

- Input/Output filters and crossovers (128 in-box).
- Input signal delay (x16).
- Input gating (x16).
- Full auto leveling (x16).
- Input compressor (x16).
- Adaptive gating (x16).
- 8x8 adjustable mix/matrix.
- Output signal delay (x10) (0 to 2000 mS in 20mS steps).
- Ambient level compensation (x10).
- Output limiter (x10).
- 37-pin multi-function control port.
- True room combining features.
- 32 internal presets.
- 32 scheduler events indicators.
- True universal power supply (UPS) allowing 100-240 VAC at 50-60 Hz.
- Incorporated single-loop IQ interface.
- Full IQ Network control/monitoring using IQwic or IQ for Windows software.
- Adjustable NOM (Number of Open Mics) (x16).
- Assignable-function front panel LED .

IQ-INT 3

IQ System Interface

The IQ-INT 3 is an IQ System® interface that connects up to four different IQ Bus loops to a host computer. It is a self-contained unit with its own IQ Bus drivers, RS232 drivers and power supply. It has a microprocessor that can be directed by the host computer to send and receive commands and data to and from IQ components connected to its IQ Bus loops.

The IQ-INT 3 supports both the original IQ and the newer IQ2 protocols. Convenient RJ-45 connectors for IQ Bus input and output make it easy to make system connections, allowing the use of off-the-shelf straight through network cables.

Features

- Connects up to four separate IQ Bus loops.
- Blue Power indicators on the front and rear panels.
- Yellow Loop Status indicators on the front and rear panels show IQ Bus loop data activity.
- RJ-45 connectors for IQ Bus input and output for easy and secure IQ Bus connections.
- Supports both the original IQ and newer IQ2 protocols.

IQ-RPT 3

IQ System Repeater

Features

- Increases the length of an IQ Bus loop by as much as 1000 feet (305 m).
- Blue Power indicators on the front and rear panels.
- Yellow Send and green Receive indicators on the front and rear panels show IQ Bus loop data activity.
- RJ-45 connectors for IQ Bus input and output for easy and secure IQ Bus connections.
- Supports both the original IQ and newer IQ2 protocols.

The Crown IQ-RPT 3 repeater helps an IQ Network go the extra distance by increasing the length of an IQ Bus loop. It does this by reconstructing the data signal to prevent its degradation. With an IQ-RPT 3 in a system, 1,000 feet (305 m) or more can typically be added to the operating distance of an IQ Bus. And because more than one IQ-RPT 3 can be used on each IQ Bus loop, the potential is impressive.

The IQ-RPT 3 works with any IQ interface, including both IQ and IQ2™ legacy interfaces.

Arena Goes “Single-Click” for Audio Network

Wolfsburg, Germany hosted the world’s first audio system utilizing the new Ethernet-based IQ Network protocol, TCP/IQ, at the 30,000 seat Volkswagen Arena. The audio system was designed to take advantage of the latest and most advanced technology available to deliver truly outstanding performance, and at the same time be easily reconfigured for other events.

The IQ Network portion of the system consists of six BSS PS 8810C digital mixer/processor units implementing CobraNet® audio routing, along with forty-four Crown CTs Series amplifiers fitted with IQ-PIP-USP3CN modules. Both IQ Network communication and the digital audio are transported via a common 100 Mbit Ethernet network, made possible by the proprietary "single-click" solution provided by TCP/IQ. Using digital audio afforded the system designers significant advantages, not the least of which being greatly reduced material and labor cost for the cable plant infrastructure.

It is the world’s first true “single-click” digital audio control and transport network, operated by one single, simple to use and free software package, IQwic.

All digital audio routing, as well as filtering and amplifier setup, was done using IQwic. IQwic also allows the system designer to create Custom “Control Pages” to provide a simple Graphical User Interface (GUI) environment for operators, giving them only the appropriate monitoring information and system control for their needs, and within a few clicks. This made operator training easy, and also assures reliable system performance when changes are made to the setup.

IQ-PIP LITE

SmartAmp Automation for TCP/IQ

The Crown IQ-PIP LITE is a PIP (Programmable Input Processor) input module for PIP2 compatible amplifiers. The IQ-PIP-LITE is a TCP/IQ series component. This means it connects to an IQ Network via 100 Mb Ethernet. This provides faster IQ communications than the previous current loop, IQ bus, connectivity method. The audio path in the IQ-PIP LITE is processed totally in the analog domain. The SmartAmp™ feature set offers a range of automation functions which provide greater control over amplifier operation and helps to save both time and money.

Features

- An IQ Network™ Programmable Input Processor with TCP/IQ (connects to an IQ System via 100 Mb Ethernet).
- Remote control and monitoring of PIP2-compatible Crown amplifiers as well as some PIP1-compatible amplifiers.*
- Faster IQ communications than the IQ bus.
- Can be connected to the same network used to transmit CobraNet audio.
- Implements SmartAmp features: input compressors, multimode output limiters, error reporting and load monitoring.
- AUX connector configurable for AUX input, AUX output, or Listen Bus.

* Please refer to the module compatibility chart at the end of the System Solutions section

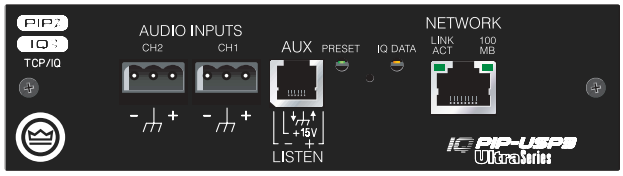
IQ-PIP USP3

Digital Signal Processing for TCP/IQ

The Crown IQ-PIP USP3 is a 3rd generation DSP-based PIP (Programmable Input Processor) input module for PIP2 compatible amplifiers*. It connects the amplifier to a 100 Mb Ethernet network allowing it to be remotely controlled and monitored via IQ. This module is a TCP/IQ series component and connects to the audio control/monitor network using standard 100 Mb Ethernet hardware (switches, Network Interface Cards, and cables).

The USP3's SHARC DSP processor gives the user an enormous amount of digital signal processing. Audio routing, faders, meters, polarity & mute, input compressors, filters, delays, multimode output limiters, error reporting, and load monitoring are all available. A built-in noise generator and sine-wave generator provide noise masking and test capabilities. The enhanced AUX port capability allows the user to interface with the amplifier to provide external manual control and monitoring.

Offering crisp, clear sound and the widest dynamic range possible with full 24-bit converters, the IQ-PIP USP3 provides unprecedented power and flexibility in one compact—and very affordable—module.



Features

- 100 Mb Ethernet single-plug solution for TCP/IQ control and monitoring.
- Listen Bus amplifier output monitor (through CobraNet).
- 24-bit conversion with 32-bit, floating point DSP processing.
- 64 assignable filters with 9 different filter types including all-pass filters.
- Over 2 seconds of delay available per channel.
- Input compressors and output limiters for each channel.
- Dual, uncorrelated noise generators for noise masking.
- Sine-wave noise generator.
- Load supervision.
- Full error reporting.
- Firmware upgrades via the network.
- 10 user-selectable presets.
- Reliable FLASH memory backup of all parameters.

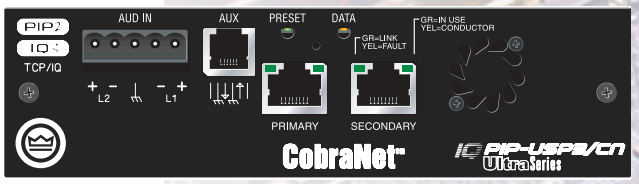
IQ-PIP USP3/CN

SmartAmp Automation for TCP/IQ

The Crown IQ-PIP USP3/CN is a 3rd generation DSP-based PIP™ (Programmable Input Processor) input module for PIP2 compatible amplifiers*. It connects the amplifier to a 100 Mb Ethernet network allowing it to be remotely controlled and monitored via IQ. In addition, the USP3/CN allows the transport of real-time digital audio via CobraNet over the same Ethernet network.

The USP3/CN is a TCP/IQ series component and connects to the audio control/monitor network using standard 100 Mb Ethernet hardware (switches, Network Interface Cards, and cables). CobraNet audio is available over the same 100 Mb Ethernet network, providing a simple to install, single plug solution for audio distribution, control, and monitoring.

The USP3/CN's SHARC DSP processor gives the user an enormous amount of digital signal processing. Audio routing, faders, meters, polarity & mute, input compressors, filters, delays, multi-mode output limiters, error reporting, and load monitoring are all available. A built-in noise generator and sine-wave generator provide noise masking and test capabilities. The enhanced AUX port capability allows the user to interface with the amplifier to provide external manual control and monitoring.



Features

- 100Mb Ethernet single-plug solution for both CobraNet audio and TCP/IQ control and monitoring.
- Analog audio inputs allow audio input to the CobraNet network, CobraNet audio redundancy, or a hardwire emergency override of CobraNet audio.
- "Listen Bus" amplifier output monitor via CobraNet.
- 24 bit digital to analog conversion with 32 bit, floating point DSP processing.
- 64 assignable filters with 9 different filter types including all-pass filters.
- Over 2 seconds of delay available per channel.
- Input compressors and output limiters for each channel.
- Dual, uncorrelated noise generators for noise masking.
- Sine-wave generator.
- Load supervision.
- Full error reporting.
- Firmware upgrades via the network.
- 10 user selectable presets.
- Reliable FLASH memory backup of all parameters.

* Please refer to the module compatibility chart at the end of the System Solutions section.

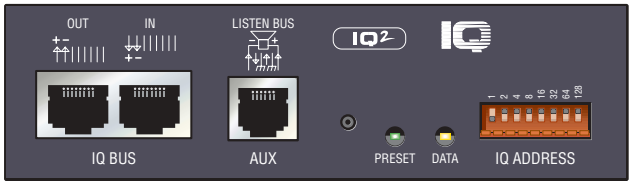
IQ-MC4 & IQ-MC8

SmartAmp Automation for CTs Multichannel Amplifiers

The Crown IQ-MC4 and IQ-MC8 are optional IQ control modules for the Crown CTs multichannel power amplifiers. The IQ-MC4 is the IQ module for the CTs 4200, and the IQ-MC8 is the IQ module for the CTs 8200. The modules require an IQ System with an IQ2-compatible interface.

A single IQ-MC module provides IQ control and monitoring capability to all channels of the amplifier. Features include basic IQ amplifier control and monitoring, including attenuation, mute, polarity, input level, output level, power supply temperature, and thermal level meters. Advanced features include IOC, Thermal and Fault error reporting, Load Supervision, output limiting, Listen Bus, AUX control port, 10 presets, and real-time "read-only" software indication of amplifier hardware indicator, level control, and mode switch status.

Crown CTs 4200 and 8200 amplifiers can be supplied with an IQ-MC module already factory-installed, or your choice of MC modules can be easily added to the amplifier by any authorized Crown Service Center.



IQ-MC8 module. IQ-MC4 module not shown.

Basic Features

Basic IQ amplifier control and monitoring, including:

- Attenuation.
- Mute.
- Polarity.
- Input level.
- Output level.
- Power supply temperature.
- Thermal level.

Advanced Features

- IOC.
- Thermal and Fault error reporting.
- Load Supervision.
- Output limiting.
- Listen Bus.
- AUX control port.
- 10 presets.
- Real-time "read-only" software indication of amplifier hardware indicator, level control, and mode switch status.
- Error reporting for level control or mode switch position change.

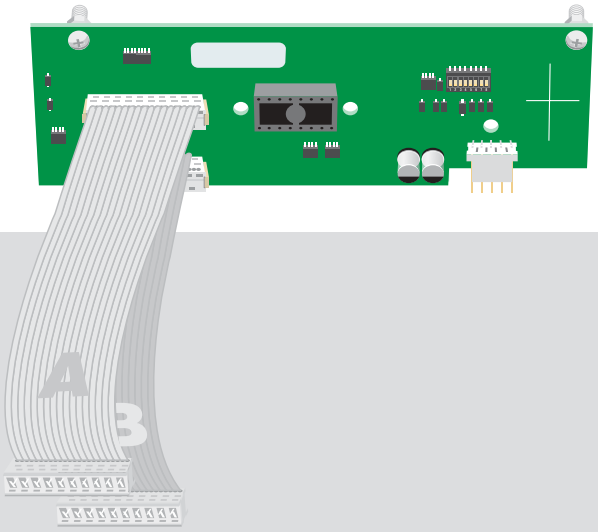
IQ-PIP-USP2 Adapter

For Older PIP-Compatible Amplifiers

The IQ-PIP USP2 Adapter allows many older Crown PIP compatible amplifiers (i.e. Macro-Tech, Com-Tech, and Studio Reference Series) to access the power and versatility of the Crown IQ-PIP-LITE module.

The USP2 Adapter can be installed into the following amplifier models: CT-200, CT-400, CT-800, CT-1600, MA-600, MA-1200, MA-2400, MA-3600VZ, MA-5000VZ, MA-24x6, MA-36x12, Studio Reference I, Studio Reference II.

Qualified service personnel must install the IQ-PIP USP2 Adapter. Installation procedures may vary depending upon the amplifier model. Contact your Crown dealer or the Crown Technical Support Group for details.



PIP-3632, PIP-4622, PIP-4632, PIP-USL

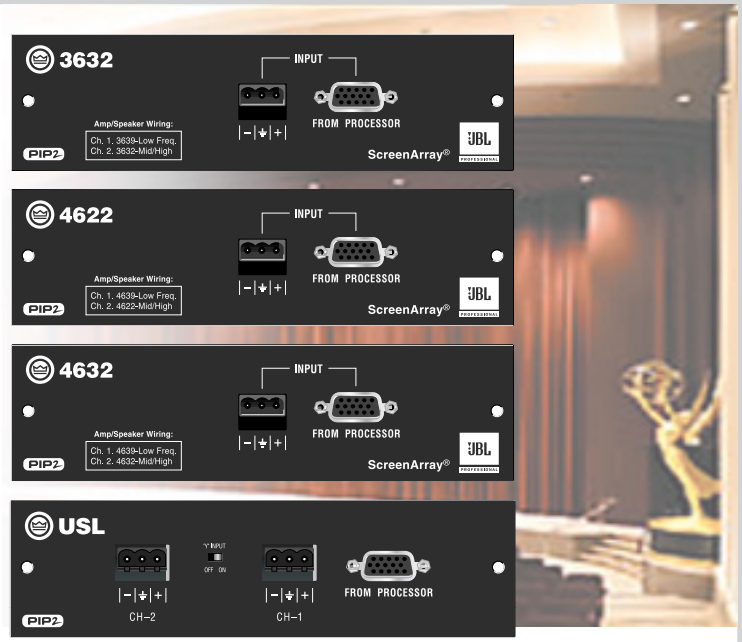
For use with JBL ScreenArray Cinema Speaker Systems

Crown ScreenArray PIP modules are custom two-channel crossover networks with equalization specifically designed for use with JBL® ScreenArray cinema speaker systems installed in cinemas, studio production and post-production environments.

The PIP-4622 is designed for use with the model 4622 ScreenArray system, the PIP-3632 is designed for use with the model 3632 ScreenArray system, and the PIP-4632 is designed for use with the model 4632 ScreenArray system.

The PIP-USL module is designed to integrate Crown amplifiers into audio systems installed in cinemas, studio production and post-production environments.

The ScreenArray PIP modules and PIP-USL install into the back of Crown PIP2-compatible amplifiers, saving rack space and simplifying system wiring. You must have a PIP2-compatible amplifier to use the ScreenArray PIP modules. To determine if your amplifier is PIP2-compatible, look for the PIP2 logo on the back of the amplifier or refer to the compatibility chart at the end of the System Solutions section.



The HD15 connector provided on all of these PIP modules is designed for quick and easy interface with popular cinema monitor products such as the USL CM-680. Accepts signal for surround or subwoofer channels, or bi-amp signals for screen channels, from the cinema processor.

P.I.P®.-AMCb Provides both a variable 4th-order Linkwitz-Riley crossover and an IOC-driven or variable-threshold signal-driven compressor. In addition, variable equalization networks provide for "constant-directivity" horn equalization and filter-assisted B6 vented bass box equalization. Bi-amping and tri-amping capabilities are provided via XLR connectors.

P.I.P.-CLP is designed to detect and prevent overload. The same error detecting circuit that is used to signal the IOC indicator is used to activate this error-driven compressor. It is not a typical signal-driven compressor but a circuit to prevent any overload. It can yield up to 13 dB of additional signal safety margin without noticeable program change.

P.I.P.-EDCb State-of-the-art programmable error-driven and signal-driven compressor plus a variable high-pass filter for each channel. Fast or slow attack and release times can be set independently for each channel.

P.I.P.-RPA A phantom-powered mixer that has four balanced mic or line inputs with voiceover capability, adjustable "duck" level, and 84 dB of attenuation. A 10-volt DC source for remote control capability is provided. The PIP-EXT (Part M44731-4), available from service, allows the PIP-RPA and other PIP cards to be "extended" outside the amplifier for easy set up.

P.I.P.-RPAT has the same features as the P.I.P.-RPA but includes four input transformers.

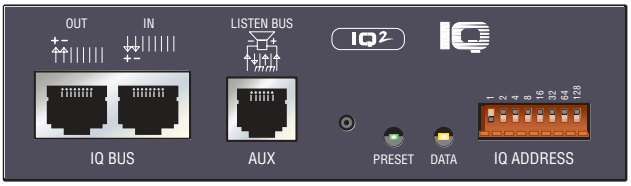
IQ-MC4 & IQ-MC8

SmartAmp Automation for CTs Multichannel Amplifiers

The Crown IQ-MC4 and IQ-MC8 are optional IQ control modules for the Crown CTs multichannel power amplifiers. The IQ-MC4 is the IQ module for the CTs 4200, and the IQ-MC8 is the IQ module for the CTs 8200. The modules require an IQ System with an IQ2-compatible interface.

A single IQ-MC module provides IQ control and monitoring capability to all channels of the amplifier. Features include basic IQ amplifier control and monitoring, including attenuation, mute, polarity, input level, output level, power supply temperature, and thermal level meters. Advanced features include IOC, Thermal and Fault error reporting, Load Supervision, output limiting, Listen Bus, AUX control port, 10 presets, and real-time "read-only" software indication of amplifier hardware indicator, level control, and mode switch status.

Crown CTs 4200 and 8200 amplifiers can be supplied with an IQ-MC module already factory-installed, or your choice of MC modules can be easily added to the amplifier by any authorized Crown Service Center.



IQ-MC8 module. IQ-MC4 module not shown.

Basic Features

Basic IQ amplifier control and monitoring, including:

- Attenuation.
- Mute.
- Polarity.
- Input level.
- Output level.
- Power supply temperature.
- Thermal level.

Advanced Features

- IOC.
- Thermal and Fault error reporting.
- Load Supervision.
- Output limiting.
- Listen Bus.
- AUX control port.
- 10 presets.
- Real-time "read-only" software indication of amplifier hardware indicator, level control, and mode switch status.
- Error reporting for level control or mode switch position change.

VCA-MC4 & VCA-MC8

Remote Level Control

The Crown VCA-MC4 and VCA-MC8 are optional level-control modules for the Crown CTs multichannel power amplifiers. The VCA-MC4 is for the CTs 4200, and the VCA-MC8 is for the CTs 8200. A VCA-MC module provides independent remote level control for each channel. 4-pin removable Phoenix-style barrier connectors provide the +10VDC control voltage, ground, and control lines for two amplifier channels. Thus, the 4-channel CTs 4200 uses two connectors; the 8-channel CTs 8200 uses four connectors. Crown CTs 4200 and 8200 amplifiers can be supplied with a VCA-MC module already factory-installed, or your choice of MC modules can be easily added to the amplifier by any authorized Crown Service Center.

Features

- Independent remote level control for each channel.
- 4-pin removable Phoenix-style barrier connectors provide the +10VDC control voltage, ground, and control lines for two amplifier channels.
- Optional wall-mount level control panels for use with VCA modules: 1-VCAP and 4-VCAP.

1-VCAP & 4-VCAP

Wall-Mount Controllers

Crown VCAP panels are wall-mounted panels with potentiometers that provide remote control of the volume of Crown CTs amplifier channels via a **VCA-MC4 or VCA-MC8** module installed in the amplifier.

Two models are available: 1-VCAP and 4-VCAP.

1-VCAP: Used in conjunction with a VCA-MC module, this is a 1-gang panel with one potentiometer that provides remote volume control for one or more CTs amplifier channels. The potentiometer on the panel is wired directly to the VCA connectors on the VCA-MC.

4-VCAP: This is a 2-gang panel with four potentiometers that provide remote volume control for four or more CTs amplifier channels. The potentiometers on the panel are wired directly to the VCA connectors on the VCA-MC.

Features

- 1-VCAP provides remote volume control for one or more CTs amplifier channels.
- Fits into a 1-gang electrical box.
- 4-VCAP provides remote volume control for four or more CTs amplifier channels.
- Fits into a 2-gang electrical box.

For MT, PT, PB and CSL Series Amplifiers

These accessory modules provide a cost effective way to add alternative inputs to Micro-Tech, Power-Tech, Power Base and CSL Series amplifiers. (Modules must be installed by an approved Crown Factory Service Center.)

MT-XLR

XLR Connectors

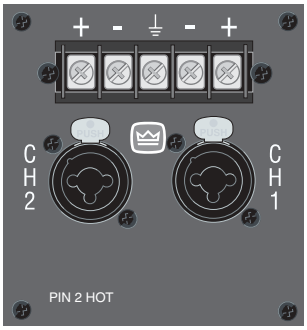
This module adds 3-pin female XLR input connectors in place of the amplifier's back panel access cover.

MT-BB

Barrier Block Connectors

This module adds barrier block input terminals in place of the amplifier's back panel access cover.

Input Options for CE, CH and CL Amplifiers



Basic Input Module

Standard SST module on Contractor Series and CE Series amplifiers. Barrier, XLR and TRS balanced input connectors.

SST-SBSC 2-way stereo crossover with summed bass output.

- **SST-SBSC 3632T:** Configured for use with JBL model 3632T ScreenArray cinema speaker systems.
- **SST-SBSC 4632T:** Configured for use with JBL model 4632T ScreenArray cinema speaker systems.
- **SST-SBSC JBL4675:** Configured for use with JBL model 4675 cinema speaker.
- **SST-SBSC JBL5672:** Configured for use with JBL model 5672 cinema speaker.

SST-MX Fourth-order Linkwitz-Riley type crossover with fixed-point crossover set at 100 Hz.

SST-SX Fourth-order Linkwitz-Riley type crossover switchable between 80 Hz and 120 Hz. Also includes summed low-frequency output.

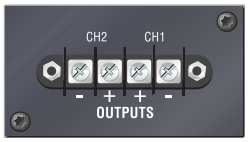
SST-4622 custom two-channel crossover network with routing and equalization specifically designed for use with JBL model 4622 ScreenArray cinema speaker systems.

SST-4632 Custom two-channel crossover network with routing, equalization and delay specifically designed for use with JBL model 4632 ScreenArray cinema speaker systems.

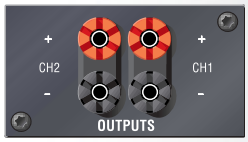
SST-3632 Custom two-channel crossover network with routing, equalization and delay specifically designed for use with JBL model 3632 ScreenArray cinema speaker systems.

Output Options for CE Series Amplifiers

For the CE 1000, CE 2000 and CE 2000TX only.



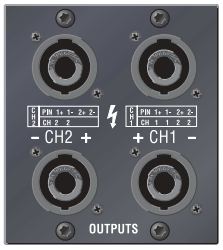
CEAS1 Provides barrier output connection in addition to the Neutrik Speakon output connection. Also include a touch-safe connector cover.



CEAS2 Provides 5-way output connection in addition to the Neutrik Speakon output connection for CE 1000, CE 2000 and CE 2000TX amplifiers.

For the CE 4000 only.

CE4D Provides Neutrik Speakon and 5-way binding post output connections for CE 4000 amplifiers.



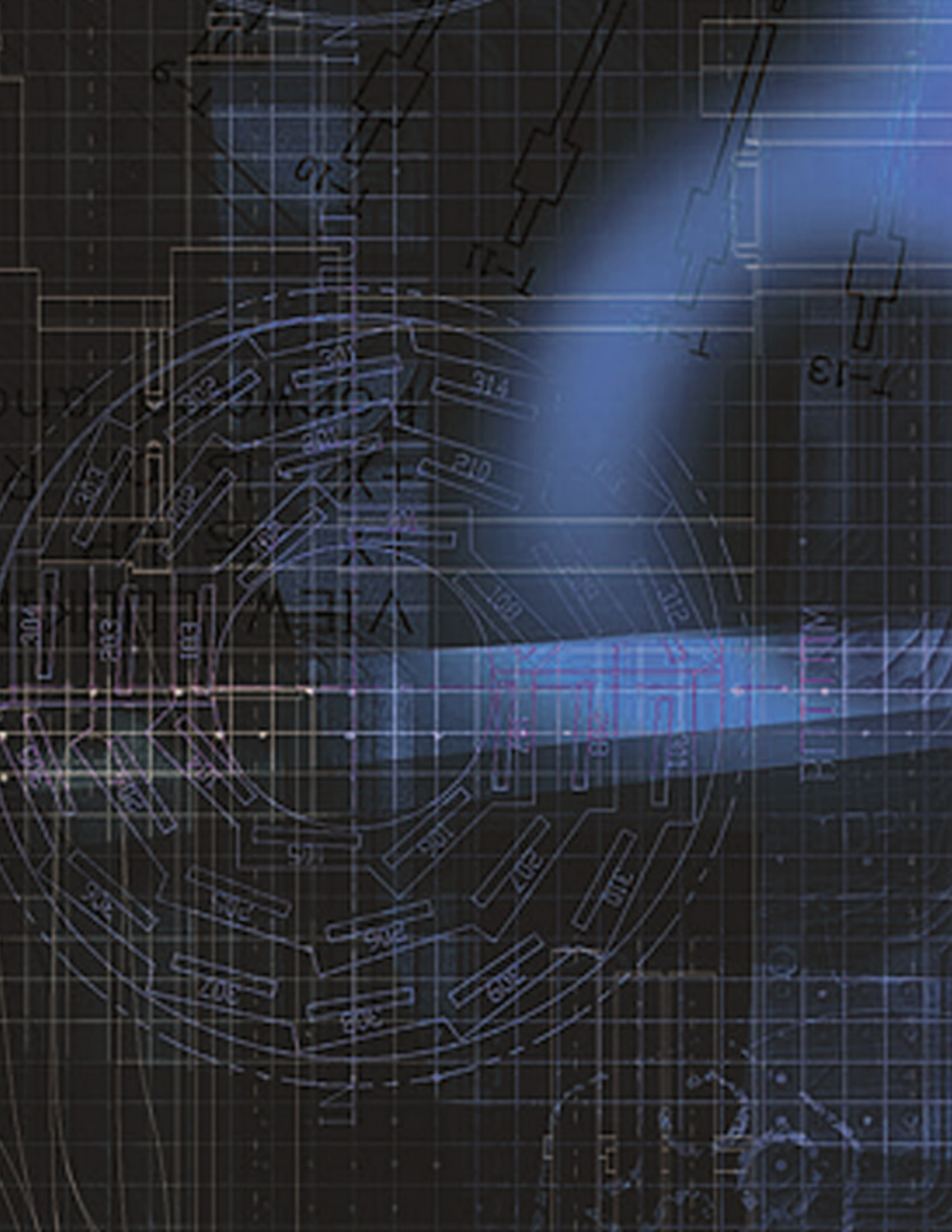
CE4E Provides two-per-channel Neutrik Speakon connections for CE 4000 amplifiers.

CE4C Provides 5-way binding post and barrier output connections for CE 4000 amplifiers. This module also comes with touch-safe connector cover.

X = Compatible

AMPLIFIER	ANALOG PIPS [4]	SST MODULES	CEAS1, CEAS2	CE4C, D, E	IQ-PIP-LITE	IQ-PIP-USP3	IQ-PIP-USP3/CN	IQ-MC4, VCA-MC4	IQ-MC8, VCA-MC8	MT-XLR MT-BB	SCREEN ARRAY PIPS	IQ-PIP-USP2 Adapter
CTs 600/ 1200/2000/ 3000					X	X	X				X	
CTs 4200								X				
CTs 8200									X			
MA02 Series	X				X	X	X				X	
MA 3600VZ	X				1							X
MA 5000VZ	X				2	2	2				X	X
MA 5002VZ	X				X	X	X				X	
MA 24x6	X				1							X
MA 36X12	X				1							X
MT Series										X		
Studio Ref. 1 and 2	X				1							X
CT 210	X				X	X	3				X	
CT 410/ 810/1610	X				X	X	X				X	
MA 00 Series	X				1							X
CT 00 Series	X				1							X
CE1000/ 2000/TX		X	X									
CE 4000		X		X								
CH Series		X										
CL Series		X										
D, IT, K, XLS and Xs Series												

1 IQ-PIP Lite may be installed in older PIP1-compatible amplifiers by using the USP2 Adapter Kit (functionality slightly limited when using the Adapter Kit).
2 MA-5000VZ amplifiers with serial numbers beginning with the prefix A or B are PIP2 compatible.
PIP2 compatible amplifiers bear the PIP2 logo PIP2 on the rear.
3 CT-210 must have optional fan installed.
4 Analog PIPs include: P.I.P.-AMCb, P.I.P.-CLP, P.I.P.-EDCb, P.I.P.-RPA and P.I.P.-RPAT.



ACCESSORIES

Amplifier Accessories .94

Microphone Accessories .95

TP-170V

Constant-Voltage Transformer Panel

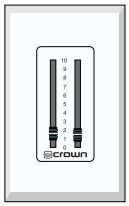
The Crown® TP-170V is a rack-mountable panel with four autoformers to provide impedance matching between amplifier outputs and “constant voltage” loudspeakers. This unit allows amplifiers without direct 70V or 100V output capability to drive distributed speaker systems designed to operate at those voltages.

The TP-170V is constructed of sturdy steel, and hinged on one side to allow easy access to the inside connections.

T-170V

Constant-Voltage Transformer

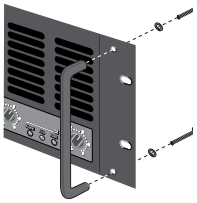
The Crown T-170V is a single autoformer that provides impedance matching between an amplifier output and “constant voltage” loudspeakers. It allows amplifiers without direct 70V or 100V output capability to drive distributed speaker systems designed to operate at those voltages.



RPA-RMT

Remote Wall Panel

The Crown RPA-RMT is a remote wall panel designed to work with the PIP-RPA. It features two level controls and a remote “tie” module that allows the attenuation of each input channel.



CE-HANDLES

CE Amplifier Handles Kit

CE handles complement your amplifier’s appearance, aid in transportation, and help you place the amplifier in or remove it from racks. For all CE, CH and CL Series amplifiers.

SPEAKONS

Connector Kit

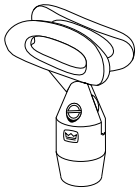
Neutrik Speakon NL-4F output connector kit.

cya
(cover your amp)

3PLUS3

3+3 Extended Warranty

Crown’s No-Fault, 3+3 Extended Warranty package extends the terms of your original full warranty for an additional three years, thus covering years four through six. Available for Crown amplifiers only.



ASA-2

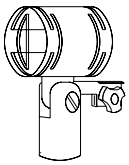
Stand adapter for the CM-200A and CM-310A handheld microphones.

ASA-4

Stand adapter for the CM-700 and CM-150 microphones, or other 3/4-inch diameter microphones.

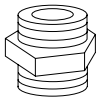
CM-30SA

Stand adapter for the CM-30 and CM-31 hanging microphones for those applications where the microphone cannot be suspended from above.



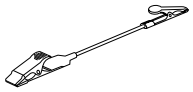
CM-SM

Shock mount for the CM-700 and CM-150 microphones. Includes swivel mount and cable clamp.



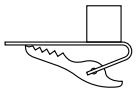
D7092-6

Threaded adapter for use with SASS-P MKII / MKII HC microphones.



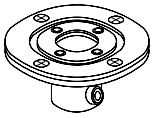
GLM-UM

Universal mount for the GLM Series.



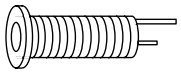
GLM-TB

Tie bar for the GLM Series.



LM-SM

Shock mount for the LM-300A and LM-300AL. The LM-SM reduces mechanically induced noise.

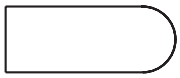


MB-JK

Switchcraft 152B 1/4-inch phone jack. For mounting MB-2 microphone on table.

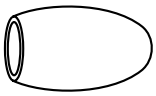
M2075550-0

Rubber hand grip for SASS-PMKII and SASS-PMKII HC microphones.



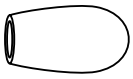
WS-2

Foam windscreen for the GLM-100 and GLM-200 microphones.



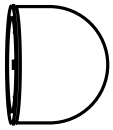
WS-5

Foam windscreen for the LM-300A, LM-300AL, LM-301A lectern microphones and the CM-30 and CM-31 hanging microphones.



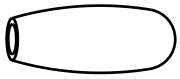
WS-5W

White foam windscreen for the CM-30 and CM-31 hanging microphones.



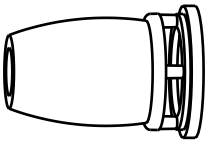
WS-6

Single stage foam pop filter for the CM-311A Series headworn microphones.



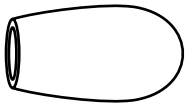
WS-7

Foam windscreen/pop filter for the CM-312A Series headworn microphones.



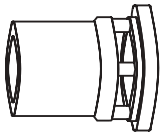
WS-9

Two-stage foam windscreen/pop filter for the LM-300A/LM-301lectern microphones and the CM-700 microphone.



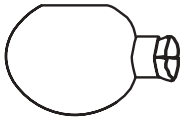
WS-11

Foam windscreen for the CM-700 and LM-201 Series lectern microphones.



WS-13

Two-stage pop filter for the CM-311A Series headworn microphones.



WS-14

Multi-stage windscreen for CM-311A Series headworn microphones.

PH-1A

Single-Channel Phantom Power Supply

The Crown PH-1A is a reasonably priced single-channel phantom power supply. Operating from two standard 9 volt cells or PS-24 plug-in adapter, it will power all Crown microphones, as well as other condenser microphones designed to operate with phantom power of 18 to 24 volts.

PH-4B

4-Channel Phantom Power Supply

The Crown PH-4B is an AC powered 4-channel power supply providing 48V DC in a phantom configuration. It uses XLR-type connectors for each channel of input and output. DC blocking is provided for easy coupling to input circuits.

PS-24

24V AC/DC Adapter

The Crown PS-24 is a plug-in AC/DC adapter that provides 24V DC for the Crown PH-1A phantom power supply (described above). It will also provide power for the LM-200A and LM-201 microphones.

EQM-311 Module

Adapts the headset from a CM-311A microphone for wireless use. Has a pigtail output cable with leads for audio, power and ground.

SASS Carrying Case

Includes a foam liner to accommodate a SASS-PMKII microphone and accessories. Order part no. D 7303-7.

REFERENCE

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AMPLIFIERS — Specifications

Amplifiers	Dual Power Per Channel[1]	Mono Power[2]	Dimensions[3]	Weight	Comments
CE 1000	560W -2Ω, 450W-4Ω, 275W-8Ω	1,100W-4Ω, 900W-8Ω	19 x 5.25 x 13"	32 lbs. 6 oz.	AB+B circuitry, Signal, Fault, Clip indicators; Stereo and Bridge-Mono modes; Neutrik Combo and barrier block input connectors; Neutrik NL4 Speakon output connectors; auxilary fault jack; front panel level controls; proportional-speed fan; SST compatible
CE 2000	975W-2Ω, 660W-4Ω, 400W-8Ω	1,950W-4Ω, 1,320W-8Ω	19 x 5.25 x 13"	40 lbs. 3 oz.	
CE 2000TX	660W-4Ω, 400W-8Ω	1,320W-8Ω	19 x 5.25 x 13"	40 lbs. 3 oz.	
CE 4000	1,400W-2Ω*, 1,200W-4Ω, 600W-8Ω	2,800W-4Ω*, 2,400W-8Ω	19 x 5.25 x 16.25"	33 lbs. 3 oz.	High power, high efficiency; global power compatibility; less heat and lighter weight; modular input/output modules; selectable LPF & HPF per channel; SST compatible
CH1	450W-4Ω, 275W-8Ω, 300W-70V, 300W-100V	900W-8Ω, 600W-140V, 600W-200V	19 x 5.25 x 12.25"	40 lbs. 10 oz.	
CH2	660W-4Ω, 400W-8Ω, 600W-70V, 600W-100V	1,320W-8Ω, 1,200W-140V, 1,200W-200V	19 x 5.25 x 12.25"	48 lbs. 5 oz.	4/8W, 70V or 100V output options per channel; 70 Hz HPF for constant- voltage outputs; rear-panel precision detented level controls; SST compatible
CH4	1,200W-4Ω, 600W-8Ω, 1,200W-70V	2,400W-8Ω, 2,400W-140V	19 x 5.25 x 16.25"	33 lbs. 5 oz.	
CL1	560W-2Ω, 450W-4Ω, 275W-8Ω	1,100W-4Ω, 900W-8Ω	19 x 5.25 x 12.25"	32 lbs. 10 oz.	High power 2W operation; shallow chassis; SST compatible
CL2	975W-2Ω, 660W-4Ω, 400W-8Ω	1,950W-4Ω, 1,320W-8Ω	19 x 5.25 x 16.25"	40 lbs. 5 oz	
CL4	1,400W-2Ω*, 1,200W-4Ω, 600W-8Ω	2,800W-4Ω*, 2,400W-8Ω	19 x 5.25 x 16.25"	33 lbs. 5 oz.	
CTs 600	150W-2Ω, 300W-4Ω, 300W-8Ω, 300W-16W, 3 00W-70V	300W-4Ω, 600W-8Ω, 600W-16Ω, 600W-140V	19 x 3.5 x 14.25"	22 lb. 13 oz	Switching power supply; high power density; direct constant-voltage operation; independently selectable input sensitivity per channel; JTS protects output transistors in CTs 600/1200; AB&B topology in CTs 600/1200; Class I (BCA) topology in CTs 2000/3000; PIP compatible
CTs 1200	250W-2Ω, 600W-4Ω, 600W-8Ω, 300W-16Ω, 600W-70V	500W-4Ω, 1200W-8Ω, 1200W-16Ω, 1200W-140V	19 x 3.5 x 14.25"	23 lb. 6 oz.	
CTs 2000	1,000W-2Ω, 1,000W-4Ω, 1,000W-8Ω, 625W-16Ω, 1,000W-70V, 1,000W-100V	2,000W-4Ω, 2,000W-8Ω, 2,000W-16Ω 2,000W-140V, 2,000W-200V	19 x 3.5 x 14.25"	27 lb.	
CTs 3000	1,500W-2Ω, 1,500W-4Ω, 1,250W-8Ω, 625W-16Ω, 1,500W-70V, 1,500W-100V	3,000W-4Ω, 3,000W-8Ω, 2,500W-16Ω, 3,000W-100V, 3,000W-200V	19 x 3.5 x 14.25"	27 lb. 11 oz.	
CTs 4200	260W-4Ω, 200W-8Ω, 220W-70V	520W-8Ω, 400W-16Ω, 220W-100V	19 x 3.5 x 16.25"	27 lb. 8 oz.	Multichannel amps; switching power supply; JTS protects output transistors, high power density; constant voltage or low Z for each ch. pair; Fault Isolation Topology isolates faults; MC modules for remote control
CTs 8200	200W-4Ω, 160W-8Ω 200W-70V	400W-8Ω, 320W-16Ω, 200W-100V	19 x 5.25 x 16.25"	36 lb. 6 oz.	
K1	750W-2Ω, 550W-4Ω, 350W-8Ω	1,500W-4Ω, 1,100W-8Ω	19 x 3.5 x 16"	32 lbs.	Balanced Current Amplifier (BCA, Class I) circuitry; TLC, Clip, IOC, Signal indicators; Dual and Bridge-Mono modes; 1/4-in. TRS and XLR input connectors; "Y" input, selectable; front panel level controls; ground lift switch, convection cooling
K2	1,250W-2Ω, 800W-4Ω, 500W-8Ω	2,500W-4Ω, 1,600W-8Ω	19 x 3.5 x16"	38 lbs.	
MA-602	400W-2Ω, 325W-4Ω 220W-8Ω	750W-4Ω, 655W-8Ω	19 x 3.5 x 16"	39 lbs. 9 oz.	Grounded Bridge circuitry; ODEP, IOC/SPI indicators; separate power supplies; Dual, Bridge-Mono and Parallel-Mono modes; balanced XLR input connectors; front-panel level controls; ground lift switch; forced-air cooling; PIP compatible
MA-1202	675W-2Ω, 480W-4Ω, 310W-8Ω	1,300W-4Ω, 970W-8Ω	19 x 3.5 x 16"	44 lbs. 1oz.	
MA-2402	1,050W-2Ω, 800W-4Ω, 520W-8Ω	2,070W-4Ω, 1,585W-8Ω	19 x 3.5 x 16"	51 lbs. 12 oz.	
MA-24X6	See MA-2402/MA-602	NA	19 x 3.5 x 16"	45 lbs. 2 oz.	Unique dual channel amplifier for bi-amp applications. Grounded Bridge circuitry; ODEP, IOC/SPI indicators; separate power supplies; balanced XLR input connectors; front panel level controls; ground lift switch; forced-air cooling; PIP compatible
MA-36X12	See MA-3600VZ/MA-1202	NA	19 x 3.5 x 16"	50 lbs. 12 oz.	
MA-3600VZ	1,800W-2Ω, 1,565W-4Ω, 1,120W-8Ω	3,505W-4Ω, 3,140W-8Ω	19 x 3.5 x 16"	55 lbs. 4 oz.	3-mode VZ power supply for maximum power matching; includes all MA Series features
MA-5002VZ	2,500W-2Ω, 2,000W-4Ω, 1,300W-8Ω	5,000W-4Ω, 4,000W-8Ω	19 x 5.25 x 16"	77 lbs.13 oz.	
MT-600	400W-2Ω, 325W-4Ω, 220W-8Ω	750W-4Ω, 655W-8Ω	19 x 3.5 x 16"	36 lbs. 4 oz.	Grounded Bridge circuitry; Enable, ODEP indicators; dual power supplies; Dual, Bridge-Mono and Parallel-Mono modes; three input sensitivities; ground lift switch; forced-air cooling
MT-1200	675W-2Ω, 480W-4Ω, 310W-8Ω	1,300W-4Ω, 970W-8Ω	19 x 3.5 x 16"	41 lbs. 1 oz.	
MT-2400	1,050W-2Ω, 800W-4Ω, 520W-8Ω	2,070W-4Ω, 1,585W-8Ω	19 x 3.5 x 16"	46 lbs. 14 oz.	
XLS 202	250W-2Ω, 200W-4Ω, 145W-8Ω	500W-4Ω, 400W-8Ω	19 x 3.5 x 14"	21 lbs.	Rugged all-steel 2U chassis; efficient cooling fan; electronically balanced XLR inputs; touch-proof binding post and Speakon® outputs; precision detented level controls; clip/power/fault indicator LEDs
XLS 402	570W-2Ω, 400W-4Ω, 260W-8Ω	1,140W-4Ω, 800W-8Ω	19 x 3.5 x 14"	25 lbs. 5 oz.	
XLS 602	840W-2Ω, 600W-4Ω, 370W-8Ω	1,680W-4Ω, 1,200W-8Ω	19 x 3.5 x 14"	27 lbs. 3 oz.	
Xs500	750W-2Ω**, 500W-4Ω, 400W-8Ω	1,600W-4Ω**, 1,450W-8Ω	19 x 3.5x17"	28 lbs.	Rugged all-steel 2U chassis; efficient cooling fan; XLR-1/4"combo and Phoenix-style inputs; daisy-chain XLR outputs; binding post outputs and Speakon outputs in Xs500/700/900/1200; XLR-1/4" combo inputs and binding post outputs in Xs4300; precision detented level controls; LEDs for clip, power, AC present, temperature and fault conditions; microprocessor-controlled protection system; lightweight design; Xs4300 is 4-channel model
Xs700	900W-2Ω**, 750W-4Ω, 450W-8Ω	1,900W-4Ω**, 1,645W-8Ω	19 x 3.5x17"	28 lbs.	
Xs900	1,100W-2Ω**, 900W-4Ω, 600W-8Ω	2,500W-4Ω**, 2,100W-8Ω	19 x 3.5x17"	28 lbs.	
Xs1200	1,600W-2Ω, 1,100W-4Ω, 650W-8Ω	2,000W-4Ω, 2,300W-8Ω	19 x 3.5 x 17"	28 lbs.	
Xs4300	300W-4Ω 200W-8Ω	700W-8Ω	19 x 3.5x17"	28 lbs.	
D-45	35W-4Ω, 25W-8Ω	70W-8Ω	19 x 1.75 x 9"	8 lbs.	AB+B circuitry; Power/Signal/IOC indicators, headphone jack; Dual/Bridge-Mono; Neutrik combo input connectors; detented front level controls, convection cooling
D-75A	55W-4Ω, 40W-8Ω	110W-8Ω	19 x 1.75 x 9"	9 lbs.	Six channels; push-pull circuitry; Signal, Clip, Temp, Power indicators; individual channel volume controls; Dual/Mono channel combining switch; proportional-speed on-demand fan
CP660	75W-4Ω, 60W-8Ω[4]	150W each-8Ω[5]	19 x 3.5 x 12.75"	25 lbs.	
Studio Ref I	1,190W-4Ω, 800W-8Ω	2,375W-8Ω	19 x 7 x 16"	60 lbs. 11 oz.	Grounded Bridge circuitry; dynamic range/level meters; Dual, Bridge-Mono and Parallel-Mono modes, 20-bit digital capable, damping factor in excess of 20,000
Studio Ref II	565W-4Ω, 360W-8Ω	1,145W-8Ω	19 x 7 x 16"	56 lbs. 2 oz.	
I-T4000	1,800W-2Ω, 2,000W-4Ω, 1,240W-8Ω	3,600W-4Ω, 4,000W-8Ω	19 x 3.5 x 16"	28 lbs.	Amazing power in a 2U lightweight chassis, global power supply with PFC, onboard DSP, built-in networking to IQ System via TCP/IQ or CobraNet™, LCD control screen shows amplifier status and diagnostics, pushbutton DSP presets for various loudspeakers, efficient Class-I circuitry
I-T6000	2,500W-2Ω, 3,000W-4Ω, 1,500W-8Ω	5,000W-4Ω, 6,000W-8Ω	19 x 3.5 x 16"	28 lbs.	
I-T8000	3,500W-2Ω, 4,000W-4Ω, 2,100W-8Ω	7,000W-4Ω, 8,000W-8Ω	19 x 3.5 x 16"	28 lbs.	

Specifications are for 120VAC, 60 Hz units only. Please contact your Crown representative for information on other units
* ≥ 200V line voltage provides 1,800W (2-ohm dual) and 3,600W (4-ohm bridge-mono). **At 0.5% THD.

1 Power per channel in Dual mode @ 1 kHz at rated THD, both channels driven (20 Hz - 20 kHz for CTs 600/1200/2000/3000).
2 Power in Bridge-Mono mode @ 1 kHz at rated THD.
3 Dimensions, Standard rack mount width x height x depth behind mounting surface
4 All channels driven. 5 Six channels bridge, three loads

Crown offers a variety of publications and guides for its line of amplifiers and IQ software/components. These are at **www.crownaudio.com.** Under **Expert Advice**, **Amps**, click on **Tech Info**. Or under **Expert Advice**, **IQ**, click on **Tech Info**.

AMPLIFIER TECHNICAL PAPERS

Crown has long been leading the audio industry with innovative technologies that provide economical solutions to real world needs. Following are Technical Papers describing technologies used in Crown amplifiers.

BCA Technology Overview
BCA White Paper
IOC Distortion Detector
Why Crown CTs Amplifiers Sound Better
Advantages of Direct Constant Voltage Operation in Crown Amplifiers
Understanding Damping Factor
Grounded Bridge Topology
ODEP (Output Device Emulation Protection)
UL, CSA, ETL, and CE: What's the Difference?

TECH MADE SIMPLE

Clear explanations of Crown technical features, condensed to one page per topic. Current topics include:

Class I (BCA)
Damping Factor
The V-I Plane
Certification Marks
Switching Power Amplifiers and Switching Power Supplies

POWER DRAW AND THERMAL DISSIPATION INFORMATION

These documents provide detailed information about the amount of power and current drawn from the AC mains by Crown amplifiers and the amount of heat produced under various conditions. The calculations presented are intended to provide a realistic and reliable depiction of the amplifier. This information should not be construed as specifications.

AMPLIFIER APPLICATION GUIDE

This useful guide provides information to help you best use your new Crown amplifier. Includes amplifier and system setup information, amp troubleshooting, a glossary of terms, and a list of recommended reading.

JBL/CROWN SCREENARRAY® SYSTEM APPLICATIONS GUIDE

Includes system diagrams and equipment lists for using Crown amplifiers with JBL ScreenArray® cinema speaker systems in cinemas.

INSTALLATIONS

Examples of Crown products in action: airports, boardrooms, concert halls, stadiums, touring.

AMPLIFIER FAQ (FREQUENTLY ASKED QUESTIONS)

At www.crownaudio.com, under Expert Advice, Amps, click on FAQs.

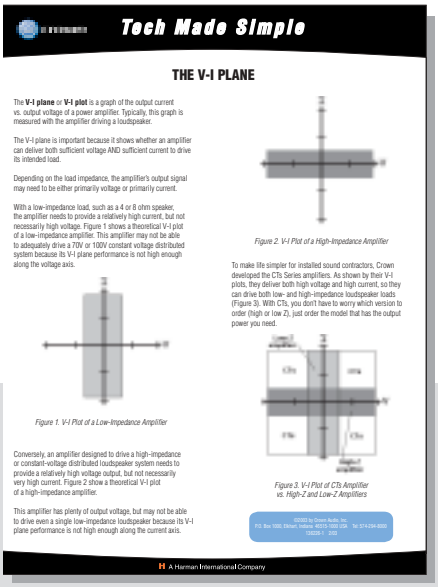
IQ TECHNICAL DOCUMENTS

At www.crownaudio.com, under Expert Advice, IQ, click on Tech Info. Some topics there include:

- IQ Note #1: Room Combining with the IQ-USM 810
- Choosing the right IQ PIP module: This guide compares the various available IQ PIP modules and discusses compatibility with Crown PIP- and PIP2-compatible amplifiers.
- Energy Conservation via IQ: This guide explains how using IQ PIP modules to manage amplifier power consumption can provide significant energy savings.
- IQ Compatibility Issues
- What is TCP/IQ?
- What is CobraNet?
- How to Set Up TCP/IQ
- How to Set Up TCP/IQ to IQ Loop Gateway

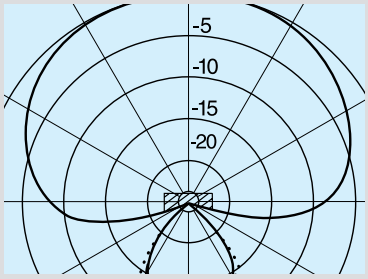
IQ FAQ (FREQUENTLY ASKED QUESTIONS)

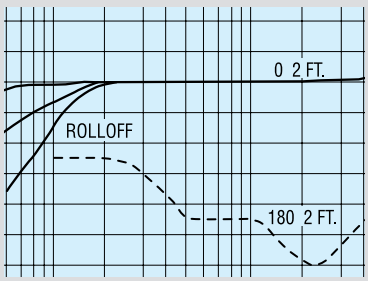
At www.crownaudio.com, under Expert Advice, IQ, click on FAQs.


Tech Made Simple
THE V-I PLANE
The V-I plane or V-I plot is a graph of the output current vs. output voltage of a power amplifier. Typically, this graph is measured with the amplifier driving a loudspeaker.
The V-I plane is important because it shows whether an amplifier can deliver both sufficient voltage AND sufficient current to drive its intended load.
Depending on the load impedance, the amplifier's output signal may need to be either primarily voltage or primarily current.
With a low-impedance load, such as a 4 or 8 ohm speaker, the amplifier needs to provide a relatively high current, but not necessarily high voltage. Figure 1 shows a theoretical V-I plot of a low-impedance amplifier. This amplifier may not be able to adequately drive a 70V or 100V constant voltage distributed system because its V-I plane performance is not high enough along the voltage axis.
Figure 1. V-I Plot of a Low-Impedance Amplifier
Conversely, an amplifier designed to drive a high-impedance or constant-voltage distributed loudspeaker system needs to provide a relatively high voltage output, but not necessarily very high current. Figure 2 show a theoretical V-I plot of a high-impedance amplifier.
This amplifier has plenty of output voltage, but may not be able to drive even a single low-impedance loudspeaker because its V-I plane performance is not high enough along the current axis.
Figure 2. V-I Plot of a High-Impedance Amplifier
To make life simpler for installed sound contractors, Crown developed the CTs Series amplifiers. As shown by their V-I plots, they deliver both high voltage and high current, so they can drive both low- and high-impedance loudspeaker loads (Figure 3). With CTs, you don't have to worry which version to order (high or low Z), just order the model that has the output power you need.
Figure 3. V-I Plot of CTs Amplifier vs. High-Z and Low-Z Amplifiers
A Harman International Company

REFERENCE

Microphones	Freq. Response	Polar Pattern	Impedance*	Sensitivity	Phantom	Comments
CM-30/30W/31/31W	40 Hz to 20 kHz	Supercardioid	150 ohms	10 mV/Pa	12 - 48 V	Hangs over choir, orchestra and stage
CM-200A/CM-200ASW	80 Hz to 15 kHz	Cardioid	150 ohms	3 mV/Pa	12 - 48 V	Hand-held vocal/instrument
CM-310A/CM-310ASW	80 Hz to 15 kHz	Cardioid	200 ohms	1.7 mV/Pa	12 - 48 V	Upclose maximum gain-before-feedback
CM-311A/311AHS/311AE	50 Hz to 17 kHz	Cardioid	75 ohms	4 mV/Pa	18 - 48 V	Differoid headworn microphone
CM-312A/312AHS/312AE	50 Hz to 17 kHz	Hypercardioid	75 ohms	3.8 mV/Pa	18 - 48 V	Hypercardioid headworn microphone
CM-700/CM-700MP	30 Hz to 20 kHz	Cardioid	190 ohms	2.5 mV/Pa	12 - 48 V	Studio/P.A./Instrument/Lectern
GLM-100	20 Hz to 20 kHz	Omnidirectional	240 ohms	3.2 mV/Pa	12 - 48 V	Mini omni instrument mic, GLM-100E for wireless
GLM-200	60 Hz to 20 kHz	Hypercardioid	150 ohms	6 mV/Pa	12 - 48 V	Mini hypercardioid for instrument
LM-201P/LM-201B	100 Hz to 15 kHz	Supercardioid	150 ohms	6 mVPa	12 - 48 V	Shock isolated lectern microphone
LM-300A/300AL/301A	80 Hz to 15 kHz	Supercardioid	150 ohms	6 mV/Pa	12 - 48 V	Dual gooseneck lectern microphones
MB Series	50 Hz to 15 kHz	Half-Supercardioid	150 ohms	22 mV/Pa	18 - 48 V	Mini unidirectional boundary microphone system
PCC-130/130W	50 Hz to 20 kHz	Half-Cardioid	150 ohms	22 mV/Pa	12 - 48 V	Miniature unidirectional boundary microphone
PCC-130SW	50 Hz to 20 kHz	Half-Supercardioid	150 ohms	22 mV/Pa	12 - 48 V	Features multi-function membrane switch
PCC-160/160W	50 Hz to 18 kHz	Half-Supercardioid	150 ohms	22 mV/Pa	12 - 48 V	Unidirectional boundary stage microphone
PCC-170/170W	50 Hz to 20 kHz	Half-Supercardioid	150 ohms	22 mV/Pa	12 - 48 V	Unidirectional boundary microphone
PCC-170SW/170SWO	50 Hz to 20 kHz	Half-Supercardioid	150 ohms	22 mV/Pa	24 - 48 V	Features multifunction membrane switch
PZM-6D	20 Hz to 20 kHz	Hemispherical	240 ohms	7 mV/Pa	12 - 48 V	Small PZM, flat or rising high-frequency response
PZM-10	80 Hz to 20 kHz	Hemispherical	240 ohms	2.5 mV/Pa	12 - 48 V	Inexpensive PZM security microphone
PZM-10LL	100 Hz to 20 kHz	Hemispherical	75 ohms	1.4 V/Pa	12 - 24 VDC	Line-level inexpensive PZM security microphone
PZM-11	80 Hz to 20 kHz	Hemispherical	225 ohms	5 mV/Pa	12 - 48 V	PZM security microphone
PZM-11LL	80 Hz to 20 kHz	Hemispherical	75 ohms	1.4 V/Pa	See comments	Line-level PZM security microphone 24 VAC, 12-24 VDC, 12-48 V phantom
PZM-11LLWR	80 Hz to 10 kHz	Hemispherical	75 ohms	1.4 V/Pa	See comments	Weather resistant line-level microphone 12-24 VAC, 12-24 VDC, 12-48V phantom**
PZM-30D	20 Hz to 20 kHz	Hemispherical	240 ohms	7 mV/Pa	12 - 48 V	PZM with flat or rising high-frequency response
PZM20R	80 Hz to 20 kHz	Hemispherical	240 ohms	7 mV/Pa	12 - 48 V	Flush-mount PZM
PZM-185	50 Hz to 16 kHz	Hemispherical	150 ohms	3.2 mV/Pa	12 - 48 V	Home and video recording
SASS-P MKII	20 Hz to 18 kHz	Omnidir./Low Freq. Unidir./High Freq.	150 ohms	6 mV/Pa	12 - 48 V	Stereo microphone for broadcast and recording
Sound Grabber II	50 Hz to 16 kHz	Hemispherical	1600 ohms	20 mV/Pa	N/A	Home and video recording





Note: All Crown microphone elements are the electret-condenser type.

* Nominal impedance – actual impedance may vary.

** Phantom powering available on special order.

Crown offers a variety of publications and guides for its full line of microphones. Most are at **www.crownaudio.com.** Under **Expert Advice**, **Mics**, click on **Tech Info** to see these documents:

CROWN TECHNICAL BULLETIN #3
Crown Guide to Connections for Wireless Microphone Applications For CM-10E, GLM-100E, CM-311E, CM-311AE, CM-312E and CM-312AE microphones.

CROWN MIC MEMO
A quarterly newsletter about Crown microphones and their application. Available online at www.crownaudio.com/mic_htm/mic_pubs.htm.

TECH MADE SIMPLE
Clear explanations of Crown technical features, condensed to one page per topic: PZM, PCC and Differoid.

MIC APPLICATION GUIDES
Available free from Crown or your Crown dealer, and at www.crownaudio.com/mic_htm/mic_pubs.htm

Crown Microphone Application Guide for Studio Recording: In this guide you'll find suggestions on using Crown microphones to record music effectively.

Crown Microphone Application Guide for Speech Sound Reinforcement: This guide offers miking tips for five applications in speech sound reinforcement: stage, lectern, conference, courtroom and athletic events.

Crown Boundary Microphone Application Guide: This free brochure provides general boundary microphone theory as well as specific suggestions for the use of boundary microphones. Microphones covered are the PZM, PCC and SASS series.

Microphone Application Guide: In this application guide, you'll find basic microphone technique information as well as suggestions on using Crown microphones effectively. Microphones covered include the CM, GLM, and LM Series.

Crown Application Guide for Houses of Worship: This guide provides suggestions and miking techniques for the specific problems found in houses of worship.

Crown Application Guide For Video: A review of miking techniques for video applications using all Crown microphones.

Crown Application Guide For Schools: This guide reviews miking techniques for a number of school applications using Crown microphones.

Crown Application Guide For Live Sound: This guide reviews miking techniques for a number of live sound applications using Crown microphones.

Crown Microphone Application Guide for Security and Surveillance: This guide offers tips on using Crown microphones to safeguard areas such as warehouses, offices, parking garages, and building entries. It also describes how to pick up police interviews and psychiatric sessions.

Crown Application Guide For Teleconferencing and Distance Learning:
This guide describes systems for teleconferencing and distance learning. It suggests which Crown mics to use and where to place them.

CD-ROMs
Crown Microphone Application Guide
Includes all the mic application guides listed above, plus data sheets, mic descriptions, and mic recommendations for various markets. Available from Crown for the cost of shipping.

Crown Microphone Demo CD
Loads of recordings that demonstrate the sound of Crown microphones. Available from Crown for the cost of shipping.

MICROPHONE SENSITIVITY CALCULATOR SLIDE RULE:
Useful for deciphering various microphone sensitivity specifications and determining proper microphone usage. Free from Crown or your Crown Dealer.

MICROPHONE FAQ and MIC FORUM
At www.crownaudio.com, under Expert Advice, Mics, click on FAQs.

CROWN MICROPHONE APPLICATION GUIDE FOR STUDIO RECORDING
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crown
Crown International, Inc
P.O. Box 1000,
Elkhart, Indiana 46515-1000
(219) 294-8200 Fax (219) 294-8329

Mic Memo
crown
Crown's Quarterly Microphone Newsletter
Fall 2002
Bruce Bartlett, Editor
CM-700 Chosen for "Dream" Studios
CM-700
In the July, 2002 issue of Electronic Musician, in the article "Build a Personal Studio on Any Budget," the Crown CM-700 cardioid condenser microphone was chosen to be part of three proposed "dream" studios.
Those studios were the $6000 portable digital studio, the $15,000 Windows studio, and the $30,000 studio without computer.
Ceiling-Mounted Conference Mics
Mics are commonly used in conference rooms for recording, teleconferencing, and sound reinforcement. Many customers do not want to see the microphones, so they specify ceiling-mounted mics. In this case, appearance is a higher value than sonic performance.
Ceiling-mounted mics are feasible for audio recording, but only if the room acoustics are very dead. Otherwise the mics pick up a lot of room reverb which muddies the sound. Also, ceiling mics work poorly for sound reinforcement. The distance from mic to source is just too great to allow much gain-before-feedback. If at all possible, use table-mounted mics for best gain and clearest sound.
If you want to use an omni ceiling-mounted mic, try a Crown PZM-11 in an electrical box. It costs little, and its high frequencies are boosted for extra clarity.
For less reverb pickup, try four Crown MB-4 mics on the ceiling angled 90 degrees from each other. Feed the four XLR outputs to an automatic mixer. Recommended settings on the mixer are: release time very long, and automatic gain control on. Again, this setup is not recommended for sound reinforcement.
Crown MB-4 boundary mic
For more information, call 800-342-6939
CM-700 for Stage Vocals
Although the CM-700 was not designed to be a stage-vocal mic, it can be made to work quite well in that application. Singer/guitarist Bob Lichty used the CM-700 for vocal pickup at a recent concert. He had this to say about its use:
"I used the double low-cut filter on the CM-700 for vocals. For guitar, I left the low-cut switch flat and rolled out a bit of the lows at the board. I learned how to "mask" my p's and t's with singing technique, so they are rarely an issue for me. I love the sound of the 700, and even my wife can't believe how different I sound 'all miked up' versus just singing at home in the bedroom."
What's Inside
• CM-700 Chosen for "Dream" Studios
• Ceiling-mounted Conference Mics
• CM-700 for Stage Vocals
• Harp Miking
• Lavalier Mic EQ
• Miking an Electronic Organ
• PZM Piano Miking
• CM-311AE Fan
• What's a PXT?
1
crown
A Harman International Company

REFERENCE

Crown Amplifier Warranty

USA AND CANADA

SUMMARY OF WARRANTY
Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship. We further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

ITEMS EXCLUDED FROM THIS CROWN WARRANTY
This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

WHAT THE WARRANTOR WILL DO
We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers or at the factory. Warranty work for some products can only be performed at our factory. We will remedy the defect and ship the product from the service center or our factory within a reasonable time after receipt of the defective product at our authorized service center or our factory. All expenses in remedying the defect, including surface shipping costs in the United States, will be borne by us. (You must bear the expense of shipping the product between any foreign country and the port of entry in the United States including the return shipment, and all taxes, duties, and other customs fees for such foreign shipments.)

HOW TO OBTAIN WARRANTY SERVICE
You must notify us of your need for warranty service within the warranty period. All components must be shipped in a factory pack, which, if needed, may be obtained from us free of charge. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by us or our authorized service center. If the repairs made by us or our authorized service center are not satisfactory, notify us or our authorized service center immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES
YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

WARRANTY ALTERATIONS
No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

DESIGN CHANGES
We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER
THIS CROWN WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.
THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 12/01

Crown Microphone Warranty

Crown's professional microphones are guaranteed against malfunction for a period of three years (one year for Sound Grabber) from date of original purchase. Should one of our microphones malfunction, it will be replaced or repaired at our expense, including all U.S. round-trip shipping. This warranty does not cover finish, appearance items, cable or cable connectors. This warranty does not cover normal wear and tear, malfunction due to abuse or operation at other than specified conditions. See your Crown dealer or representative for complete warranty details or contact Crown direct at 1-800-342-6939.

Crown Amplifier Warranty

WORLDWIDE EXCEPT USA & CANADA

SUMMARY OF WARRANTY

Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown1 product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship, and we further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

1 Note: If your unit bears the name "Amcron," please substitute it for the name "Crown" in this warranty.

ITEMS EXCLUDED FROM THIS CROWN WARRANTY

This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers. We will remedy the defect and ship the product from the service center within a reasonable time after receipt of the defective product at our authorized service center.

HOW TO OBTAIN WARRANTY SERVICE

You must notify your local Crown importer of your need for warranty service within the warranty period. All components must be shipped in the original box. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by our authorized service center. If the repairs made by our authorized service center are not satisfactory, notify our authorized service center immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER

No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 7/01

TRADEMARKS NOTICE: Crown, Amcron, BCA, Com-Tech, IQ, Differoid, IOC, IQ System, Macro-Tech, Micro-Tech, ODEP, Phase Coherent Cardioid, P.I.P., PZM, PZMicrophone, Pressure Zone Microphone, PCC, SASS, and VZ are registered trademarks; Grounded Bridge, Power-Tech, PIP, PIP2, Studio Reference, TCP/IQ, IQwic, SmartAmp and IQ2 are trademarks of Crown International.

The Pressure Recording Process (PRP) (patented) is the basis for the PZMicrophones originally manufactured by Wahrenbrock Sound Associates, Ltd. Crown PZMicrophones are now manufactured under license from E. M. Long Associates and their agent, Synergetic Audio Concepts.

Neutrik, Speakon, Windows, CobraNet, ScreenArray, dbx, Phoenix and JBL are used for information only and are the property of their respective companies.

Crown Audio, Inc. reserves the right to make changes in specifications, software, or products without prior notice. Crown Audio, Inc. also assumes no responsibility for any error in type or print reproduction of the features or specifications in this literature.

Some models may be exported under the name Amcron®.

AMPLIFIER FEATURE COMPARISON CHART

		CE 1K/2K	CE 4000	CH 1, CH 2	CH 4	CL 1, CL 2	CL 4	K Series	Studio Ref	MA-602,1202,2402
Protection systems										
	ODEP/JTS								X	X
	Thermal Level Control (TLC)							X		
	Automatic high-pass filter			X	X			X		
	Switchable high-pass filter		X							
	Low-pass filter (ultrasonic/RFI protection)	X	X	X	X	X	X	X		
	Power circuit breaker	X		X	X	X	X		X	2402 only
	Proportional-speed fans	X	X	X	X	X	X		X	
	Automatic current and voltage limiting		X							
	Quad Mute									X
	Convection cooled (no fan)							X		
Advanced Features										
	Class I (BCA)		X		X		X	X		
	Switching power supply		X		X		X			
	Grounded Bridge								X	X
	AB+B	X		X		X				
	Bridge Mode Indicator									
	Y input switch							X		
	Input Sensitivity switch	X	X					X	X	X
	IOC							X	X	X
	Standby mode								X	X
	Precision detented level controls			X	X	X	X			
	70V / 100V operation			X	X					
Options										
	Input sensitivity option			X	X	X	X			
	Handle kit	X	X	X	X	X	X			
	Input modules	X	X							
	Output modules	X	X							
	Level Control shaft lock									X
	PIP compatible								X	X
	PIP2 compatible									X
	Crown SST Modules	X	X	X	X	X	X			
	Other (specify)									
Input										
	XLR							X	X	X
	1/4-inch							X	X	X
	Combo	X	X	X	X	X	X			
	Screw terminals	X	optional	X	X	X	X			
Output										
	Speakon	X	X							
	5-way binding posts	optional	X					X	X	X
	Screw terminals			X	X	X	X			

		MA3600VZ, MA5002VZ	MA 24x6, 36x12	MT	CTs 2-Ch.	CTs multi-ch.	D	CP660	XLS	Xs	I-Tech
Protection systems											
	ODEP/JTS	X	X	X	600/1200 only	X					X
	Thermal Level Control (TLC)				X	X					
	Automatic high-pass filter					X					
	Switchable high-pass filter				X						
	Low-pass filter (ultrasonic/RFI protection)			X	X						
	Power circuit breaker	MA5002VZ only	X	2400 only	X				X	X	X
	Proportional-speed fans	X			X	X		X			X
	Automatic current and voltage limiting						X		X	current	
	Quad Mute										
	Convection cooled (no fan)						X				
Advanced Features											
	Class I (BCA)				2000/3000 only						X
	Switching power supply				X	X				X	X
	Grounded Bridge	X	X	X							
	AB+B				600/1200 only	X	X	X	X		
	Bridge Mode Indicator				X	X				X	X
	Y input switch										X
	Input Sensitivity switch	X	X	X	X						X
	IOC	X	X				X				
	Standby mode				2000/3000 only						
	Precision detented level controls				X	X			X	X	X
	Other (specify)	7				2	headphone jack			5	9
Options											
	Input sensitivity switch					X					X
	Handle kit										
	Input modules			X							
	Output modules										
	Level Control shaft lock										
	PIP compatible	X	X								
	PIP2 compatible	X			X						
	Crown SST Modules										
	Other (specify)				1	3	4				
Input											
	XLR	X	X	optional					X		X
	1/4-inch	X	X	X							
	Combo						X			X 6	
	Screw terminals				X	X		X			
	Phoenix									X	
Output											
	Speakon								X		X
	5-way binding posts	MA3600VZ only	X	X				X	X	X	X
	Screw terminals	8			X	X	X				
	Other (specify)										10

1 T-170V autoformer, TP-170V autoformer panel optional accessories
2 Fault Isolation Topology, Hi/low Z output mode switch
3 MC modules and VCA modules option alow remote volume control
4 Bridge-mono option, input-sensitivity option
5 Microprocessor-controlled protection, AC Mains indicator
6 XLR output paralleled with XLR-1/4" combo and Phoenix-style inputs
7 Both have Variable Impedance (VZ); MA5002VZ has compressor
8 MA5002VZ has screw terminals and banana jacks
9 Onboard IQ networking via TCP/IQ or CobraNet, AES/EBU digital input, onboard DSP, pushbutton presets, global power supply with PFC, LCD control screen shows status/diagnostics
10 Two male XLR passive analog loop through. XLR active/re-clocked AES/EBU digital loop through.

CHOOSING THE RIGHT CROWN MICROPHONE

There's a wide variety of Crown microphones. This guide will help you select the best Crown mic for your application.

TRANSDUCER TYPE (ELEMENT TYPE)

How the mic converts sound to an electrical signal: dynamic, ribbon or condenser.

Dynamic
Has a diaphragm, an attached coil of wire, and a magnet. When sound vibrates the diaphragm, the coil generates an electrical signal.

Ribbon
Has a thin metal ribbon in the gap of a magnet. When sound vibrates the ribbon, it produces a signal.

Condenser
Has a light-weight diaphragm next to a disk. Both are charged with static electricity by an electret material or an external voltage. When sound vibrates the diaphragm, this produces a signal. Powered by phantom power or battery.

All Crown microphones are the electret condenser type. This type provides accurate, detailed sound, offers high sensitivity, and can be made very small.

BOUNDARY OR FREE-FIELD

Where the microphone is placed: on a surface or away from surfaces.

Boundary microphones are designed to be used on stage floors, piano lids, hard-surfaced panels, or walls.

Crown boundary mics are the PZM, PCC and MB Series.
Crown free-field mics are the CM, GLM, LM and SASS-P MKII Series.

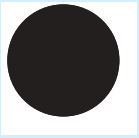
FREQUENCY RESPONSE

A measure of the microphone s sound or tonal balance.

See the page on Microphone Frequency Response for details.

POLAR PATTERN

How the mic picks up sound from different directions.



An **omnidirectional** mic picks up sound equally well from all around it. Examples: GLM-100, CM-150.

Cardioid, **supercardioid** and **hypercardioid** mics pick up sound mainly from one direction: in front of the microphone. Examples: GLM-200, LM Series.

Cardioid

Supercardioid

Hypercardioid

A **hemispherical** (half-omni) mic is used on a surface. The mic picks up sound equally well from all directions, above the surface it is mounted on. Examples: PZM Series.

Half-cardioid or **half-supercardioid** mics are used on a surface.

They pick up sound from above the surface they are mounted on, and mainly in front of the microphone. Examples: PCC and MB Series.

Choose omni or PZM mics when you need:
All-around pickup.
Pickup of room acoustics.
Extended low-frequency response (unless the lows are filtered out).
Low handling noise.
Low wind noise.
No up-close bass boost.
Clip-on miking.

Choose non-omni mics when you need:
Selective pickup.
Rejection of sounds behind the microphone.
Rejection of room acoustics and leakage.
More gain-before-feedback.
Up-close bass boost (proximity effect)

SUGGESTED CROWN MICS FOR VARIOUS APPLICATIONS

ACCORDION
GLM-100 (2) taped to instrument
CM-700 or CM-200A

ACOUSTIC BASS
Close miking: GLM-100 or CM-200A
Distant miking: CM-700

ACOUSTIC GUITAR
Recording: CM-700, GLM-100 or SASS
Reinforcement: GLM-100, CM-200A

ALTAR TABLE
PCC-170W or PCC-130W

AMBIENCE
SASS or PZM

AUDIENCE
PCC-160, CM-700 or PZM

BANJO
CM-700, CM-200A or GLM-100

BASS
See Acoustic Bass

BRASS
Recording: CM-700
Reinforcement: CM-700, CM-200A, or GLM-100 attached to bell

CHOIR
Recording: CM-700 or SASS
Reinforcement: CM-30, CM-31 or CM-700

CONFERENCE
Multiple mics: PCC Series (tabletop) or LM Series (lectern mics)
Single mics: PZM Series, Mini-Boundary Series, or Sound Grabber II.

CYMBALS
CM-700 or GLM-200

DRUMS
Snare and Toms: CM-700 or GLM-200
Kick Drum: CM-700, GLM-100 or PZM-30D
Overhead cymbals: CM-700 or GLM-200
Single-mic pickup: CM-700 overhead, PZM on drummer's chest, or GLM-100 clipped to right side of snare drum, 4 inches over the rim

ELECTRIC GUITAR
CM-200A or CM-700

FIDDLE
CM-700
Singing fiddler: CM-200A
Clipped to fiddle: GLM-100 or GLM-200

FILM
Lavalier: GLM-100
Ambience: SASS

FLUTE
CM-700, or GLM-100 taped between mouthpiece and holes

GRAND PIANO
CM-700 or PZM-6D

GUITAR
See Acoustic Guitar or Electric Guitar

HARMONICA
Close: CM-200A. Distant: CM-700

HARP
Recording: CM-700 or SASS
Reinforcement: GLM-100 inside soundboard

HI-HAT
CM-700 or GLM-200

INTERCOM
Outdoor: PZM-11LLWR

LECTERN, PULPIT
1. LM Series
2. PCC Series

MANDOLIN, BOUZOUKI, DOBRO
CM-700, CM-200A, or GLM-100 taped to instrument

NARRATION RECORDING
CM-700

NEWS/SPORTS REPORTING (FIELD)
Headworn:CM-311A, CM-311AHS, CM-312A, CM-312AHS
Stand-mounted or handheld: CM-200A, CM-310A

ORCHESTRA, SYMPHONIC BAND, PIPE ORGAN
CM-700, PZM-6D, SASS

PERCUSSION
1. CM-700
2. CM-200A
3. GLM-100, GLM-200 or PZM Series

PIANO
See Grand Piano or Upright Piano

SAX
Recording: CM-700
Reinforcement: CM-200A, or GLM-100 clipped to top of bell facing sound holes

SECURITY AND SURVEILLANCE
XLR connector: PZM-10
Pigtail connector, line-level: PZM-10LL
Screw-terminal connector: PZM-11
Screw-terminal connector, line level: PZM-11LL
Ceiling or overhang directional mic: MB-3
Water resistant: PZM-11LLWR

SPEECHES
Talker wanders: GLM-100 as lavalier, CM-312A headworn mic
Talker remains at lectern: LM Series, PCC Series

THEATER, DRAMA, OPERA, MUSICALS
Stage floor: PCC-160, Hanging: CM-30
CM-31, Body: GLM-100

UPRIGHT PIANO
1. CM-700
2. GLM-100 taped to soundboard

VIDEO
Lavalier: GLM-100.
Ambience: SASS

VIOLIN
CM-700. Also see Fiddle.

VOCAL RECORDING
Overdubs: CM-700 with hoop-type pop filter.
Live: CM-200A

VOCAL REINFORCEMENT
Best sound: CM-200A
Best gain-before-feedback and isolation:
Headworn: CM-311A, CM-311AE, CM-311AHS
Stand-mounted: CM-310A, CM-310ASW

WEDDING
Lavalier: GLM-100 lavalier.
Floor: PZM-30D

WOODWINDS
Recording: CM-700
Reinforcement: GLM-100 clipped to instrument

There are no rules

You can use almost any microphone in any application because you choose the microphone based on what you want to hear.

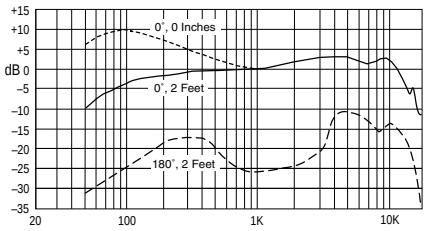
Microphone placement also has a major effect on the reproduced sound. Feel free to experiment until you get the sound you want.

For microphone placement suggestions:

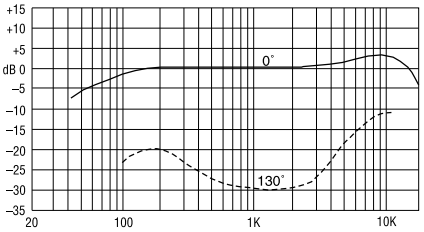
Check out the **Crown Microphone Application Guides**, available online at http://www.crownaudio.com > MICS > INFORMATION & HOW TO.

MICROPHONES: FREQUENCY RESPONSE

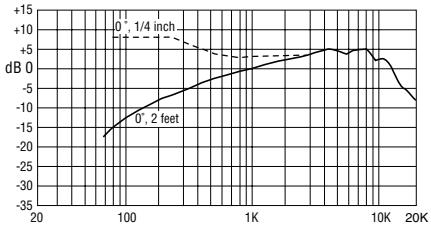
All these frequency-response curves were measured at 2 feet from the sound source except as noted. Mics with cardioid, supercardioid or hypercardioid pickup patterns have a rise in in low frequencies (called proximity effect) when used close to the source.



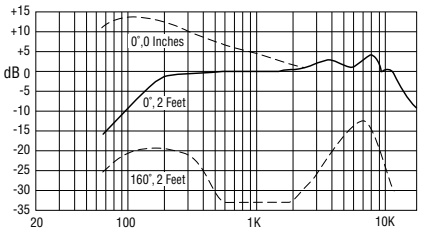
CM-200A, CM-200ASW



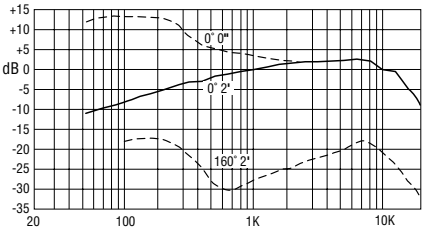
CM-30, CM-31



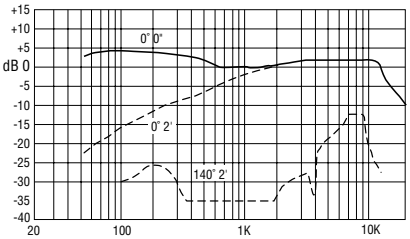
CM-310A, CM-310ASW
(Switch set to "rising" or "announcing")



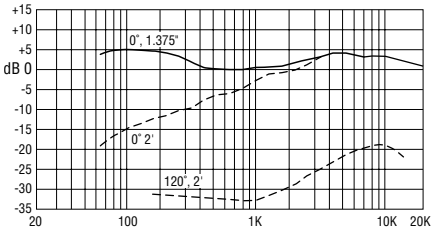
CM-310A, CM-310ASW
(Switch set to "flat" or "music")



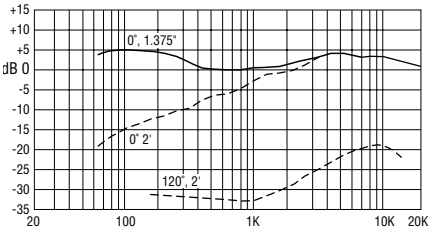
CM-311A, CM-311AE



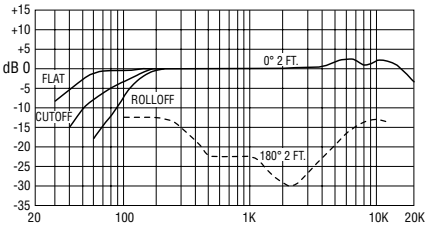
CM-311AHS



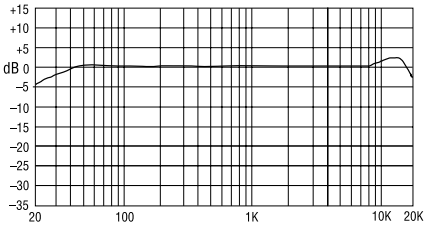
CM-312A, CM-312AE



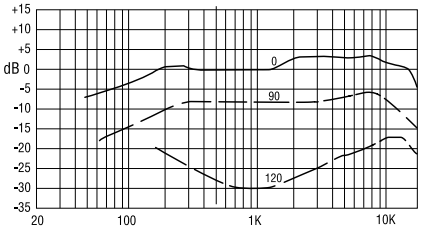
CM-312AHS



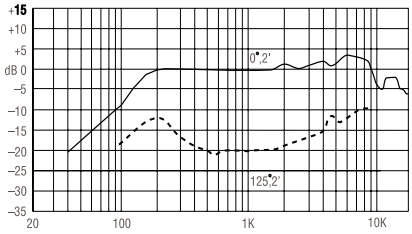
CM-700



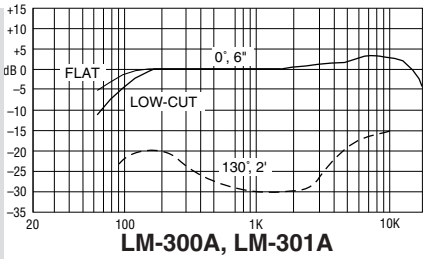
GLM-100, GLM-100E



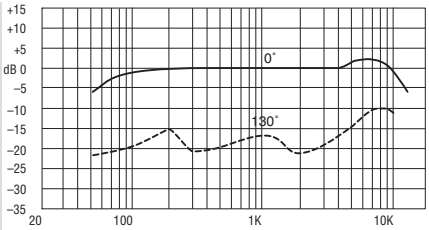
GLM-200



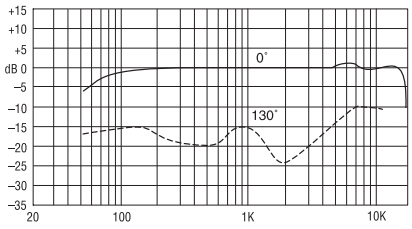
LM-201



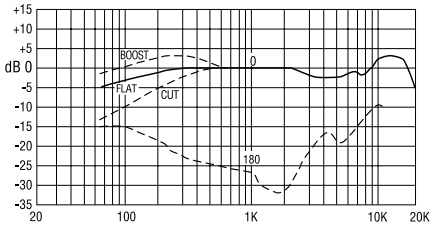
LM-300A, LM-301A



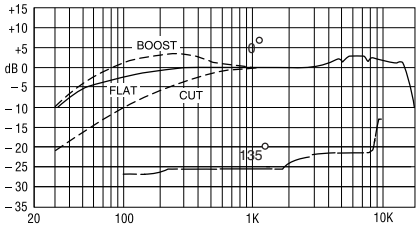
MB-1, MB3



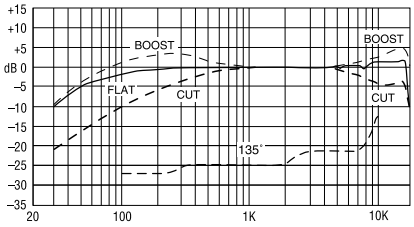
MB-2, MB-4



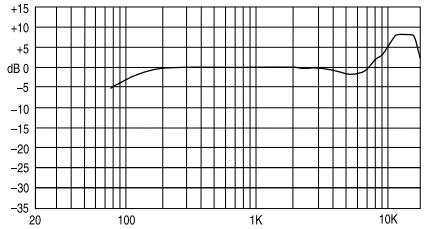
PCC-130, PCC-130SW



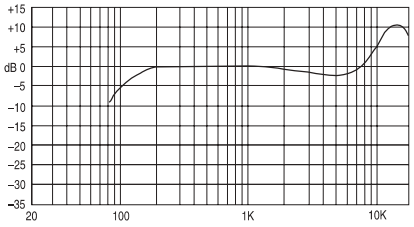
PCC-160



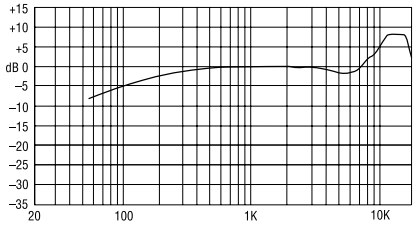
PCC-170, PCC-170SW



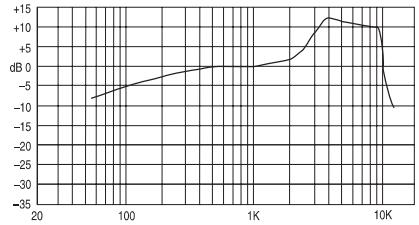
PZM-10



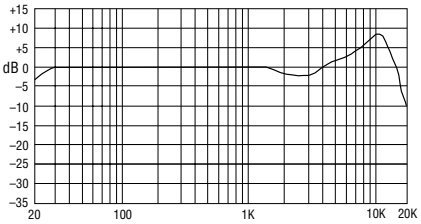
PZM-10LL



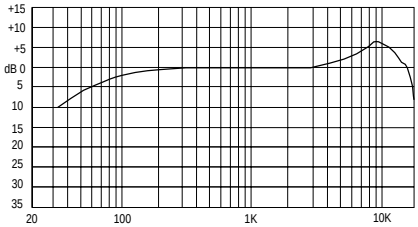
PZM-11, PZM-11LL



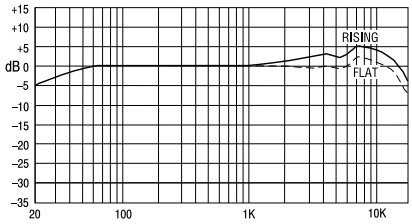
PZM-11LLWR



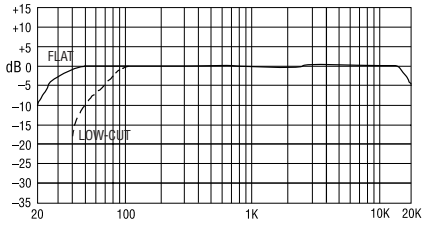
PZM-185, SOUND GRABBER II



PZM-20R



PZM-30D, PZM-6D



SASS-P MKII

FREQUENCY RESPONSE AND TONE QUALITY

A flat frequency response indicates a natural tonal balance at 2 feet from the sound source, while a response rising at the high frequencies indicates a brighter sound with emphasized treble.

Sometimes a rising response is intentional to enhance clarity, or to make loud instruments sound natural when heard at a less-than-live listening volume.

In some microphones, the low frequencies are intentionally rolled off to reduce air-conditioning rumble or to reduce boominess when the microphone is used up close.

AMPLIFIERS — Product Application Index

INSTALLED SOUND
CTs 2-channel Series
CTs Multi-channel Series
CH Series
CL Series
I-T Series
K Series
D Series
XLS Series
CP660

PORTABLE PA
XLS Series
CE 1000, CE 2000, CE 4000
Xs Series
K Series

TOURING
I-T Series
MA-3600VZ and MA-5002VZ
MA-02 Series
MA-24x6 and MA-36x12
Micro-Tech Series
Xs Series

STUDIO / RECORDING / BROADCAST
D Series
K Series
Studio Reference Series

CINEMA
CTs 2-channel Series
CTs Multi-channel Series
CL Series
CE 2000TX
XLS Series

THX-approved amplifiers
CE 1000
CE 2000TX
CL Series
CTs 4200
CTs 8200
MA-602TX
MA-1202TX
MA-2402TX
MA-5002VZTX
MT-600
MT-1200
Studio Reference I

MICROPHONES — Product Application Index

INSTALLED SOUND: Stage and Pulpit
PCC-160, PCC-160W
CM-30, CM-30W
CM-31, CM-31W
LM-201P
LM-300A, LM-300AL, LM-301A

INSTALLED SOUND: Conference
MB-1, MB-2, MB-3, MB-4, MB-4E, MB-100, MB-200
PCC-170, PCC-170W
PCC-170SW, PCC-170SWO
PCC-130, PCC-130W
PCC-130SW
PZM-20R
PZM-185
Sound Grabber II
PZM-10, PZM-10LL
PZM-11, PZM-11LL

INSTALLED SOUND: Security / Surveillance
PZM-10, PZM-10LL
PZM-11, PZM-11LL
PZM-11LLWR
PCC-160, PCC-160W
CM-30, CM-30W

PORTABLE PA / TOURING
CM-200A, CM-200ASW
CM-310A, CM-310ASW
CM-311A, CM-311AE, CM-311AHS
SASS-P MKII, SASS-P MKII HC
CM-312A, CM-312AE, CM-312AHS
GLM-100, GLM-100E
GLM-200
PZM-6D, PZM-30D
CM-700, CM-700MP

RECORDING / BROADCAST
CM-200A, CM-200ASW
CM-700, CM-700MP
PZM-30D
PZM-6D
CM-311AHS
CM-312AHS
CM-310ASW
SASS-P MKII, SASS-P MKII HC

PRODUCT INDEX

POWER AMPLIFIERS

Accessories
CE 1000
CE 2000
CE 2000TX
CE 4000
CH1
CH2
CH4
CL1
CL2
CL4
CP660
CTs 600
CTs 1200
CTs 2000
CTs 3000
CTs 4200
CTs 8200
D-45
D-75A
I-T4000
I-T6000
I-T8000
K1
K2
MA-602
MA-1202
MA-2402
MA-24x6
MA-36x12
MA-3600VZ
MA-5002VZ
MA-24x6 and MA-36x12
MT-600
MT-1200
MT-2400
Studio Reference I
Studio Reference II
XLS 202
XLS 402
XLS 602
Xs500
Xs700
Xs900
Xs1200
Xs4300

MICROPHONES

Accessories
CM-30, CM-30W
CM-31, CM-31W
CM-200A, CM-200ASW
CM-310A
CM-310ASW
CM-311A
CM-311AE
CM-311AHS
CM-312A
CM-312AE
CM-312AHS
CM-700
CM-700MP
GLM-100
GLM-200
LM-201P
LM-300A
LM-300AL
LM-301A
MB-1
MB-2
MB-3
MB-4
MB-4E
MB-100
MB-200
PCC-130, PCC-130W
PCC-130SW
PCC-160, PCC-160W
PCC-170, PCC-170W
Power Supplies
PZM-6D
PZM-10
PZM-10LL
PZM-11
PZM-11LL
PZM-11LLWR
PZM-20R
PZM-30D
SASS-P MKII, SASS-P MKII HC
Sound Grabber II

SYSTEM SOLUTIONS

1-VCAP
4-VCAP
CEAS1
CEAS2
CE4D
CD4E
CE4C
IQ-MC4
IQ-MC8
IQ-INT 3
IQ-PIP-LITE
IQ-PIP USP2 Adapter
IQ-PIP USP3
IQ-PIP USP3/CN
IQ-RPT 3
IQ 5.12 software
IQ-USM 810
IQwic software
MT-BB
MT-XLR
P.I.P-AMCb
P.I.P-CLP
P.I.P-EDCb
P.I.P-RPA
P.I.P-RPAT
PIP-USL
SST Basic Module
SST Cinema Modules
SST-MX
SST-SBSC
SST-SX
VCA-MC4
VCA-MC8

NOTES

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Harman International: http://www.harman.com

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